JULY, 1921

THE JOHN CRERAR
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JOHN CRERAR
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Marine Engineering

S.S. GEORGE WASHINGTON
RECONDITIONED AT THE
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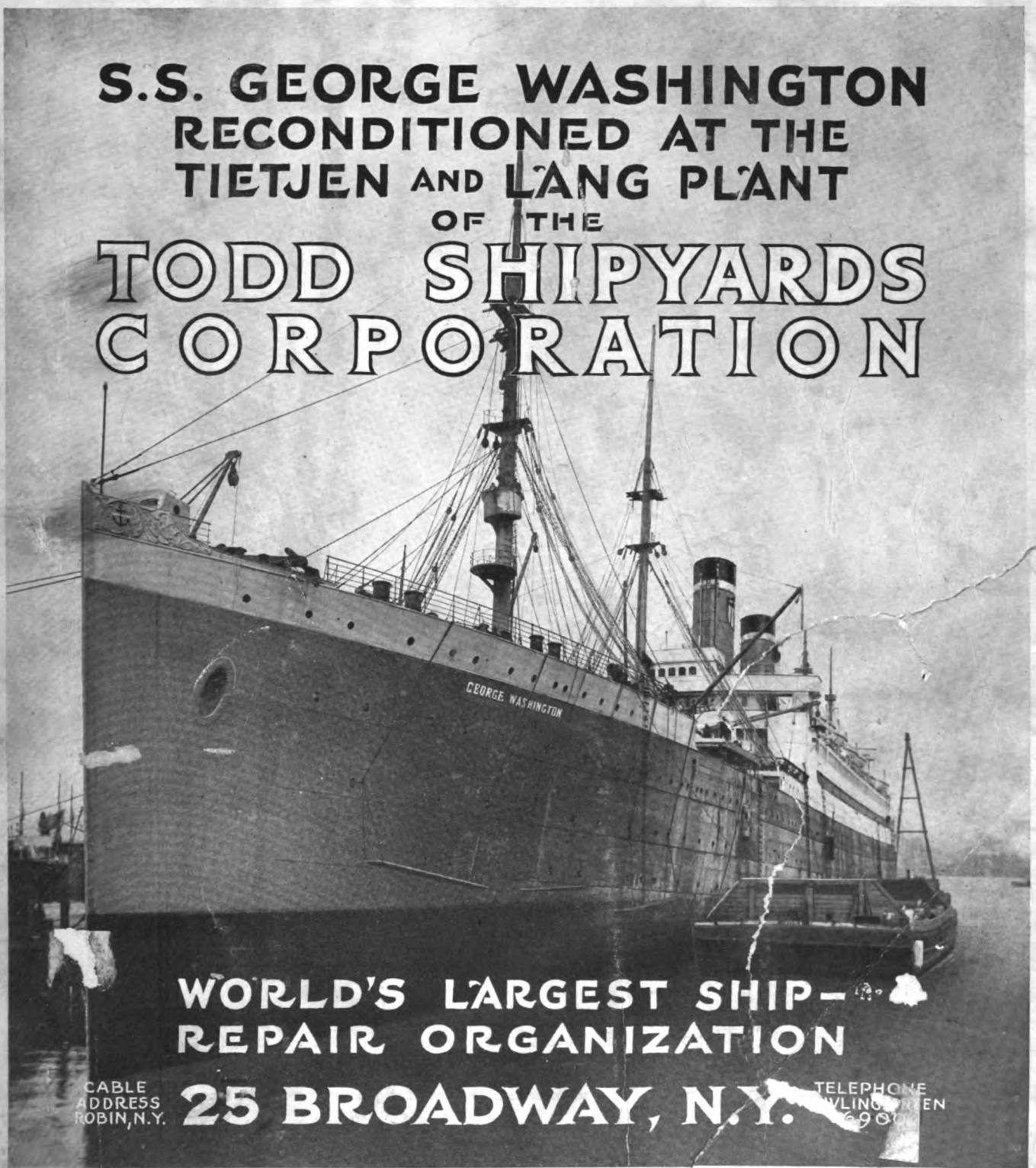
OF THE
TODD SHIPYARDS
CORPORATION



WORLD'S LARGEST SHIP-
REPAIR ORGANIZATION

CABLE
ADDRESS
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25 BROADWAY, N.Y.

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Doctoring a deck

DOZENS of time and labor saving applications have made the [illegible] welding and cutting indispensable in ship yards.

Because uniformly high purity, exceptional portability and constant

Prest-O-Lite

DISSOLVED ACETYLENE

has proven the most satisfactory gas for welding and cutting in ship building and repairing.

Forty plants and warehouses insure immediate deliveries of Prest-O-Lite anywhere and in any desired quantity—a never failing service that has greatly enhanced the value of Prest-O-Lite in the hundreds of yards where it is regularly used.

THE PREST-O-LITE COMPANY, Inc.

General Offices: Carbide and Carbon Building, 30 East 42nd Street, New York Balfour Building, San Francisco

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PW-506-21

Vol. XXVI. No. 7.

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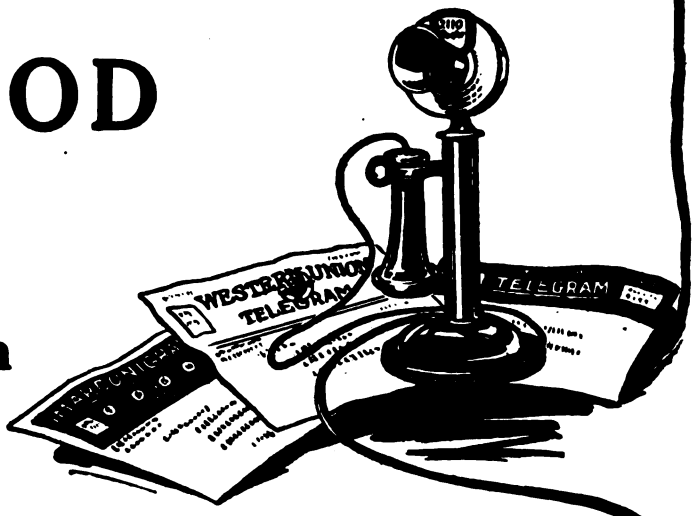
LIDGERWOOD SERVICE

follows the winch at work.



It is prompt, satisfactory and far-reaching.

FOR INSTANCE:

S. S. "Somme" in New York was due to leave port on January 12th. Order received over the telephone at 10.00 A. M. January 12th for a complete set of winch spares. Before 5 o'clock that afternoon the parts were delivered to the "Somme."

S. S. "Sunewco" at Norfolk, Va., needed two connecting rods. We received the order at New York office on March 11th at noon and telegraphed our Norfolk agents to supply connecting rods from stock. Rods delivered to ship early next morning.

Note: We have stocks of repair parts for our No. 1917 ship's winch at our offices in the following ports:

NEW YORK Lidgerwood Manufacturing Co.	SAN FRANCISCO N. B. Livermore & Co.
BOSTON Hubbard, Floyd Co., Inc.	SEATTLE Lidgerwood Manufacturing Co.
NORFOLK John D. Westbrook, Inc.	CHICAGO Lidgerwood Manufacturing Co.
JACKSONVILLE D. J. Carrison & Co.	LONDON, ENGLAND Lidgerwood, Ltd.

Send for our Winch Part List. It illustrates every part of the winch.

When you have to order a Lidgerwood repair part it will fit. Your deck engineer makes the replacement. Lidgerwood ship's winches are built on the duplicate part system, and are interchangeable. Parts are built from jigs and templates.

All you need do is send us name of part wanted, and serial number OF WINCH which is STAMPED (not cast) on edge of rear cylinder head. Do not send number cast on part.

TELEPHONE OR WIRE NEAREST OFFICE!

LIDGERWOOD MANUFACTURING CO.

96 LIBERTY STREET, NEW YORK, N. Y.

***Branches:*—Chicago, Cleveland, Detroit, Pittsburgh, Philadelphia, Seattle, Los Angeles, London, England**

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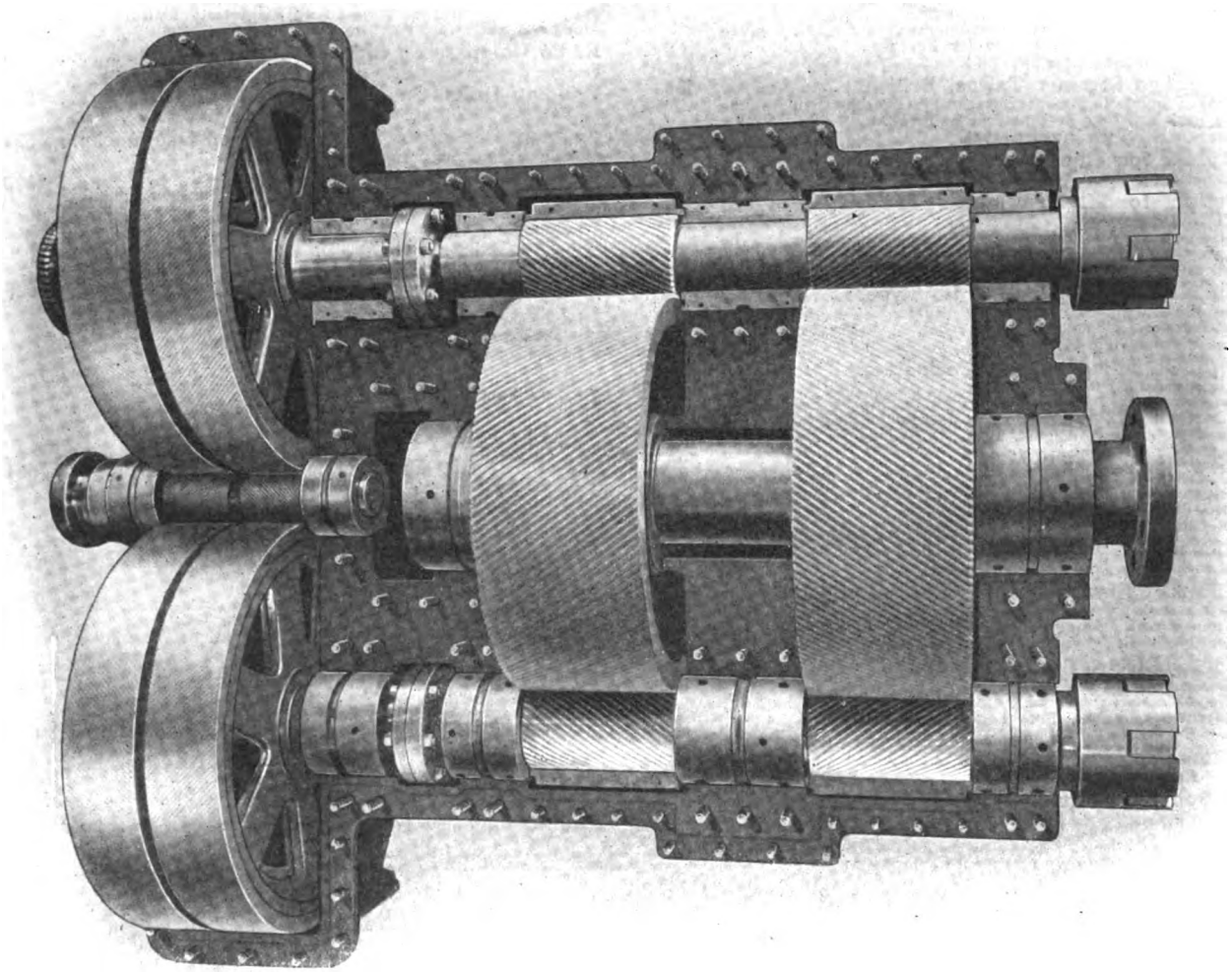
100% ACTUAL PERFORMANCE

QUIET—RELIABLE—EFFICIENT



Plan View (cover removed) 2500 to 3000 S.H.P. Type

Manufacturers of Geared Turbine Propelling Machinery in capacities up to 6000 S.H.P.
Also Turbine Driven Auxiliaries, all sizes.

KERR TURBINE COMPANY

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MONTREAL, CANADA, Southam Bldg.
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HONOLULU, T. H.
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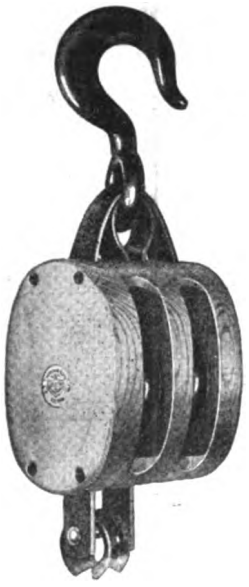
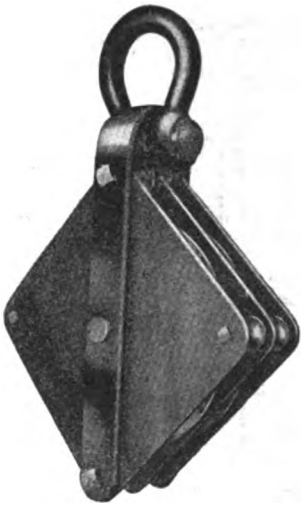
UNION

WOOD AND STEEL TACKLE BLOCKS AND STEEL DROP FORGINGS

STRONG WHERE THE STRENGTH IS NEEDED



AS a chain is as strong as its weakest link, so a block is as strong as its weakest part. In these blocks there are no weak parts. Relative strength is correctly proportioned in construction of sheave pins, straps, plates and fittings.



LOOK FOR TORRINGTON U.S.A. UNION HARDWARE CONN. THIS BRAND

UNION HARDWARE COMPANY
TORRINGTON, CONN.
NEW YORK OFFICE - 99 CHAMBERS ST.

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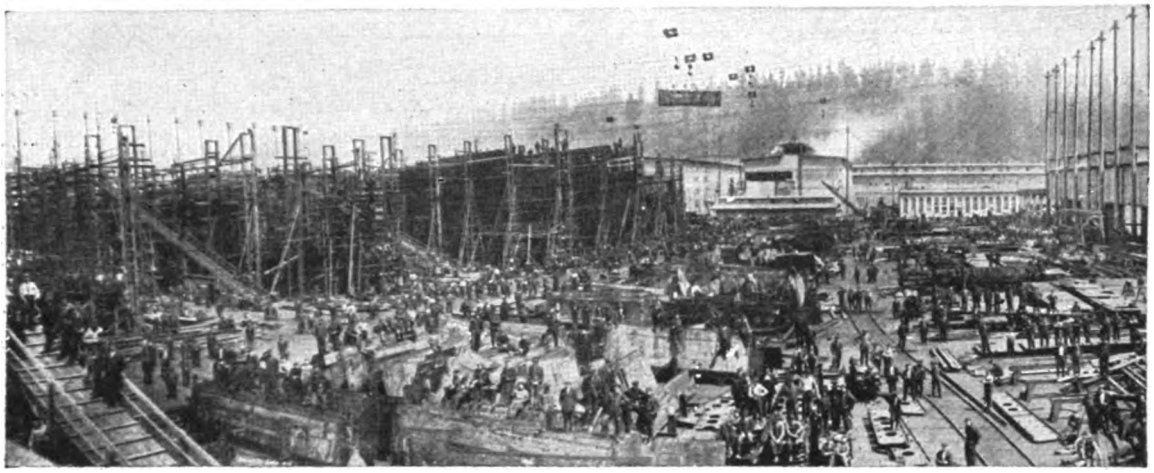
WORLD'S LARGEST SHIP-REPAIR ORGANIZATION



Plant of Todd Dry Dock Construction Corporation, Tacoma, Wash.

SHIP BUILDERS
AND REPAIRERS
BOILERMAKERS
PARSONS TURBINES
OIL BURNING
INSTALLATIONS
ELECTRIC DRIVE
EQUIPMENT

NINETEEN
FLOATING DOCKS
TWO GRAVING DOCKS
TWELVE SHIPWAYS

PLANTS

Robins Dry Dock & Repair Company
Erie Basin, Brooklyn, N. Y.

Tietjen & Lang Dry Dock Company
Hoboken, N. J.

Tebo Yacht Basin Company
Foot of 23rd Street, Brooklyn, N. Y.

Clinton Dry Docks, Inc.
Foot of Clinton Street, Brooklyn, N. Y.

White Fuel Oil Engineering Corp.
Todd and White Oil Burning Systems
742 East 12th Street, New York City

Todd Dry Dock & Construction Corp.
Tacoma, Washington

Todd Dry Docks, Inc.
Harbor Island, 16th Ave. S. W.,
Seattle, Wash.

TODD · SHIPYARDS · CORPORATION

CABLE "ROBIN" NEW YORK ALL CODES MAIN OFFICE 25 BROADWAY NEW YORK TELEPHONE BOWLING GREEN 6900

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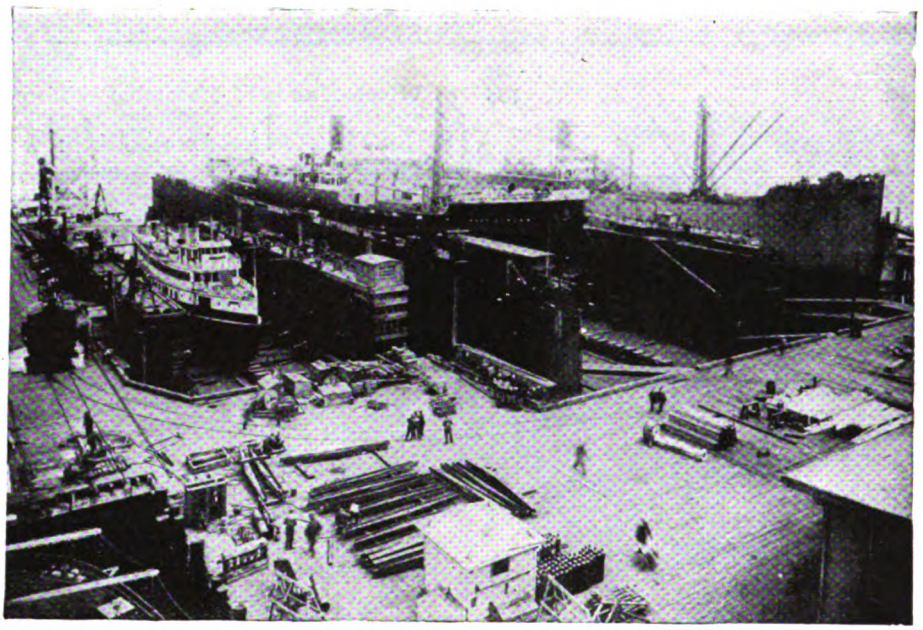
WORLD'S LARGEST SHIP-REPAIR ORGANIZATION



PLANT OF TODD DRY DOCKS, INC., HARBOR ISLAND, SEATTLE, WASH.

SHIP BUILDERS
AND REPAIRERS
BOILERMAKERS
PARSONS TURBINES
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Hoboken, N. J.

TEBO YACHT BASIN COMPANY
Foot of 23rd Street, Brooklyn, N. Y.

CLINTON DRY DOCKS, INC.
Foot of Clinton Street, Brooklyn, N. Y.

WHITE FUEL OIL ENGINEERING CORP.
Todd and White Oil Burning Systems
742 East 12th Street, New York City

TODD DRY DOCK & CONSTRUCTION CORP.
Tacoma, Washington

TODD DRY DOCKS, INC.
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SHIP BUILDERS
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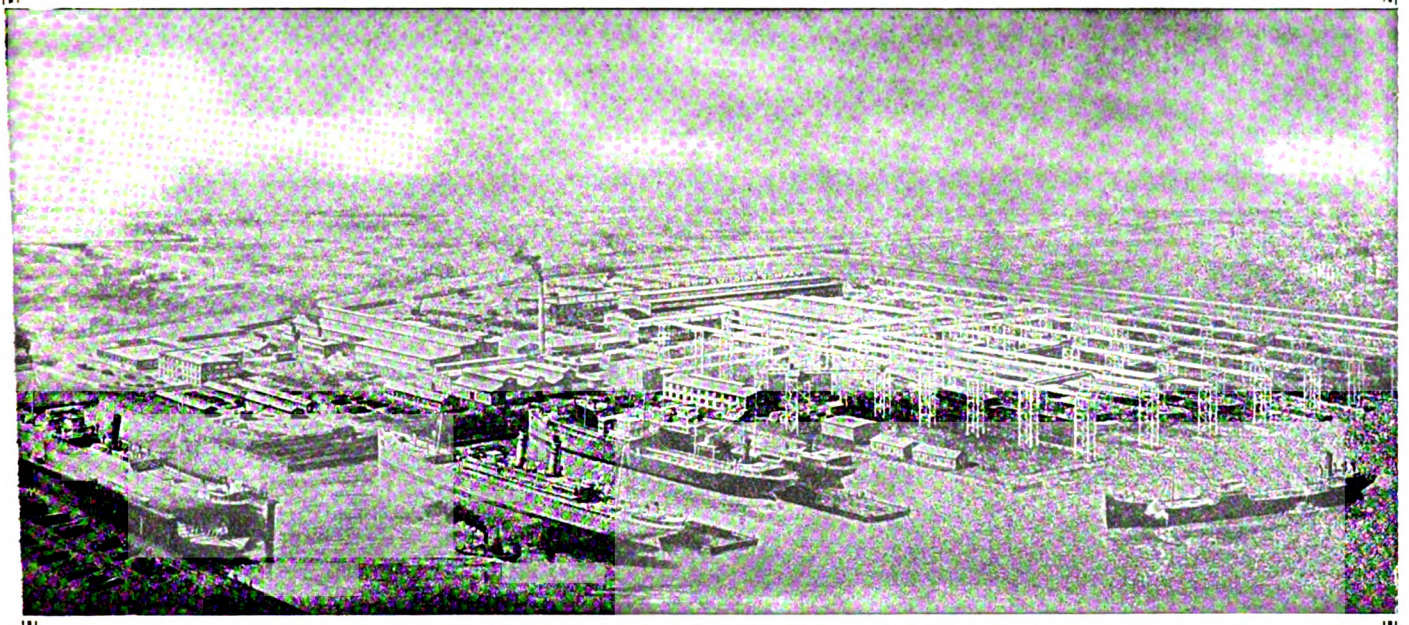
Our New Ten Thousand Ton Floating Dry Dock Now Ready for Business!



CAPACITY OF SHIPYARD—EIGHT BUILDING WAYS, THREE LARGE WET DOCKS.
ENGINE BUILDERS—BOILER MAKERS—IRON FOUNDERS.
EXTENSIVE FACILITIES FOR SHIP, ENGINE AND BOILER REPAIRS.

BUILDERS OF HIGH CLASS SINGLE AND TWIN SCREW PASSENGER AND CARGO VESSELS, ALSO BULK OIL TANKERS, UP TO 600 FEET IN LENGTH

SUN SHIPBUILDING COMPANY

Main Office and Shipyard Chester, Penna, U. S. A.

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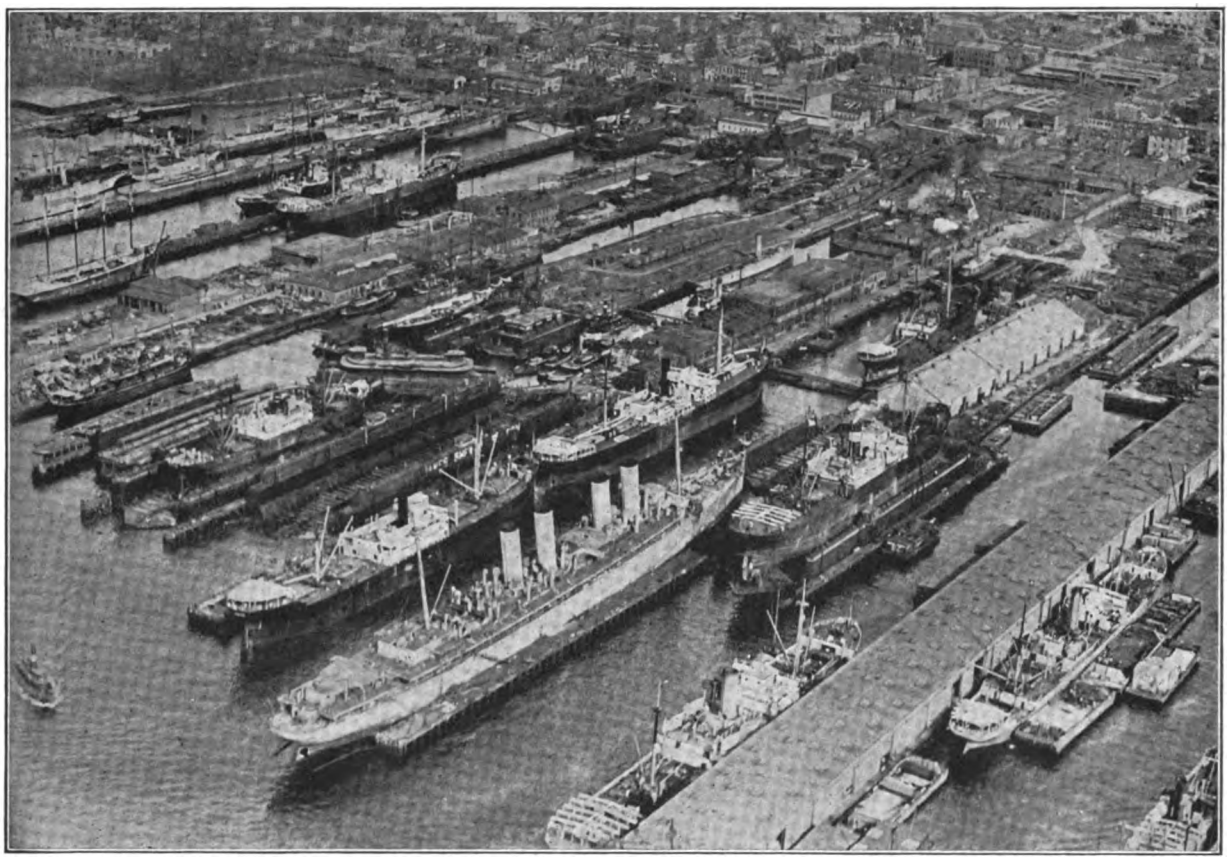
Largest Repair Plant in



AEROPLANE VIEW OF PLANT

JAMES SHEWAN

Over 50 Years of Con

Brooklyn Yard

Ft. of 25th, 26th, 27th and 28th Streets

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Port of Greater New York

Dry Docks: There are 10 dry docks ranging from 500 to 12,000 tons. No. 7 is 450 ft. Long, 110 ft. Breadth, 35 ft. Draft over Keel Block and 12,000 ton capacity.

Floating Derricks: The Derrick boats are of 10, 15, 20, and 40 tons capacity.

Tugs and Launches: For moving and shifting vessels, there are four ocean-going tugs, and four steam launches to take workmen to vessels anchored in the stream.

Electric Welding Barges and Floating Air Compressors: Four twin unit electric welding barges. Two air compressor barges.

Special Equipped Barge: Barge equipped to furnish steam and apply water pressure to boilers.

Boiler Shop: 475 ft. x 75 ft. Equipped with electric hoists, compressors—oil burning plate heating furnace 35 ft. x 8 ft.—oil burning bar heating furnace 55 ft. x 5 ft.

Machine Shop: 296 ft. x 70 ft.—equipped with two electric cranes—capacity up to 50 tons.

Power Plant: 73 ft. x 70 ft.

Electric and Air Compressor Plant: 60 ft. x 70 ft.

Pipe Fitting Shop: 75 ft. x 150 ft.

Coppersmith, Tinsmith and Plumbing Shop: 250 ft. x 80 ft.

Blacksmith Shop: Contains thirty blacksmith fires and six large steam hammers, with all necessary appliances.

Saw Mill, Joiner, Carpenter and Patternmaker Shop: 140 ft. x 69 ft.

Berthing Facilities: Forty Steamers with a mean draft of about 35 ft. can be easily berthed.

Fire Equipment: Automatically operated pressure pump maintains a constant pressure of 125 lbs. throughout the entire yard. The fire boat "Seth Low," formerly operated by the New York Fire Department, has been overhauled, is in first class fire fighting condition and is available at all times.

Railroad Siding: Railroad siding connecting with Bush Stores and the D. L. & W. R. R.

All the dry docks are motor driven; air compressors and all other machinery are electrically equipped. In this immense store yard is a vast amount of repair material including 5,000 tons of plates and angles.

JAMES SHEWAN & SONS, Inc., is in a position to handle any size conversion or repair job.

& SONS, Inc.

tinuous Operation

New York Office
32 Broadway

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EFFICIENCY
SIMPLICITY

RELIABILITY
ECONOMY

TODD MECHANICAL OIL BURNER is the finished product of years of untiring experimentation and development in burning fuel oil mechanically.

700 INSTALLATIONS

On Vessels of the Leading Steamship Companies U. S. Shipping Board and U. S. Navy Including Many of the Largest and Most Powerful Steamships in the World

LET OUR EXPERTS ADVISE YOU. ESTIMATES FURNISHED

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SAN FRANCISCO AND SOUTHERN CALIFORNIA:	FORD & GEIRRINE	MERCHANT'S EXCHANGE BLDG. SAN FRANCISCO

MANUFACTURING AGENTS

SEATTLE AND NORTHWEST:	TODD DRY DOCKS, Inc.	HARBOR ISLAND, SEATTLE, WASH.
CANADA:	N. E. McCLELLAND & CO., Ltd.	MONTREAL

TODD · SHIPYARDS · CORPORATION

ENGINEERS PARSONS TURBINES

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WORLD'S LARGEST SHIP-REPAIR ORGANIZATION

PLANT OF ROBINS DRY DOCK & REPAIR COMPANY, ERIE BASIN, BROOKLYN, N. Y.

SHIP BUILDERS
AND REPAIRERS
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CABLE "ROBIN" NEW YORK ALL CODES MAIN OFFICE 25 BROADWAY NEW YORK TELEPHONE BOWLING GREEN 6900

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ANNOUNCEMENT

THE personnel added to our Engineering Staff is one of the noteworthy instances of development in our organization during the past few years.

From time to time men of large calibre, with ability in varied lines, have associated themselves with the Heine organizaation. While individual announcements have already been made, we believe the cumulative advantage to customers will be more readily appreciated by here listing a few of these men and some of their achievements:

JOHN HUNTER. Formerly Chief Engineer of the Union Electric Light & Power Company, St. Louis. The results obtained at the Ashley Street Station of this Company are a tribute to his pioneering ability in power plant improvement. By re-allocation of units, increased efficiencies and judicious additions to equipment the capacity here was increased from 12,000 kw. to 116,000 kw. *without* increase in the building. During the war Mr. Hunter was in charge of the yard of the Standard Shipbuilding Corporation at Shooters Island, N. Y. where 8300 men were employed at the time of the armistice. Mr. Hunter is a member of the Uniform Boiler Law Society, and of the Prime Movers Committee of the National Electric Light Association. He also served as Manager and later as Vice-President of the American Society of Mechanical Engineers.

CHARLES H. STODDARD. Formerly Chief Engineer of Moore Ship-building Company, San Francisco, and previously Civilian Superintendent of shops at Mare Island Navy Yard. Few men have had as much experience in designing a great variety of machinery as Mr. Stoddard—boilers and engines of all types and sizes, mining hoists and mining machinery,—likewise steam vessels ranging from tug boats to

HEINE LARGE UNIT BOILERS

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warships. It is also interesting to note that Mr. Stoddard actively co-operated in the design of three of the largest air compressors ever built in the United States.

ALFRED COTTON. Some of the early refinements on mechanical stokers were made by Mr. Cotton, while in the employ of Thomas Henderson, Liverpool, England, a pioneer in mechanical stokers and grates. He also designed one of the very first—if not the first—multi-stage centrifugal pumps. Later Mr. Cotton held a responsible position on the Engineering Staff of Lever Brothers, Ltd., one of the largest soap works in the world. As Chief Ass't Engineer for Meldrum Brothers, Ltd., Manchester, England, he collaborated in the development of the Meldrum Municipal Refuse Destructor. Amongst Mr. Cotton's personal inventions is the Cotton Forced Draft Furnace.

J. R. FORTUNE. Mr. Fortune was the Chief Engineer of the Automatic Furnace Syndicate of London. When that company was taken over by the Underfeed Stoker Company of Great Britain, he was retained as Chief Engineer and Works Manager. Later Mr. Fortune served as European Sales Manager of the Murphy Iron Works Company of Detroit, manufacturers of Murphy Stokers and Furnaces, and was finally called to Detroit to be Chief Engineer and Works Manager. While in Detroit he also acted as a Director of the Steere Engineering Company, Consulting Gas Engineers. From 1915 to 1917 he was engineer-assistant to Mr. John Dodge, President of Dodge Brothers, automobile manufacturers. During the war Mr. Fortune served as Efficiency Engineer at the large gun and shell plant of the American Brake Shoe Company at Erie, Pa.

The experience and service of these men and of many others of our organization are offered to power plant engineers and executives to help with whatever installation and operating problems they may have. Correspondence is invited.

HEINE SAFETY BOILER COMPANY

ST. LOUIS, U. S. A.

New York Boston Chicago Cincinnati New Orleans
Philadelphia Pittsburgh Detroit Cleveland

Also Agencies in many other cities

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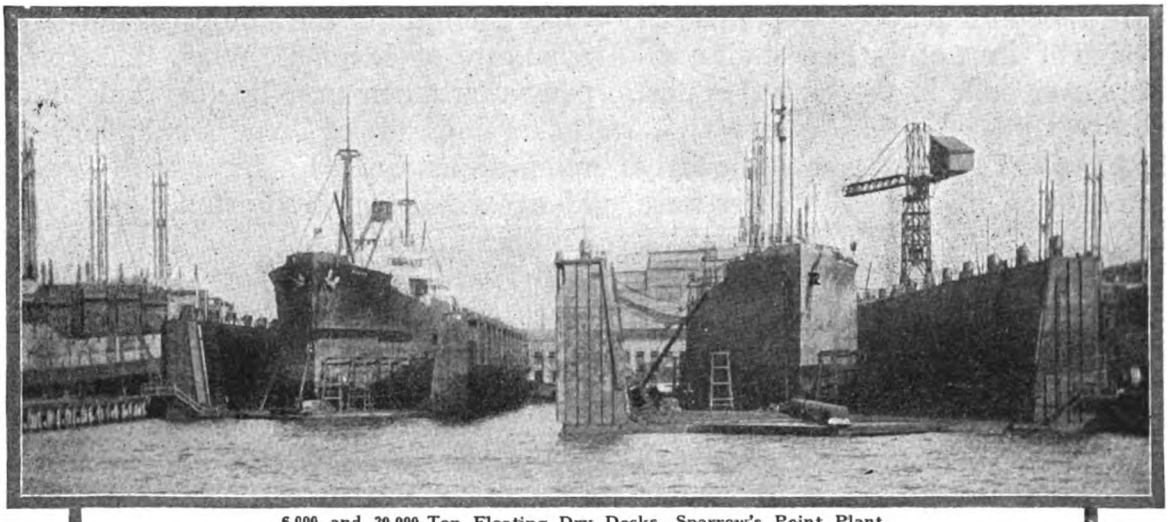
BETHLEHEM

SHIP BUILDING — SHIP REPAIRING



6,000 and 20,000-Ton Floating Dry Docks, Sparrow's Point Plant

Complete Facilities

For Building All Types of Naval and Merchant Vessels and the Prompt Execution of Marine Repairs of Every Description

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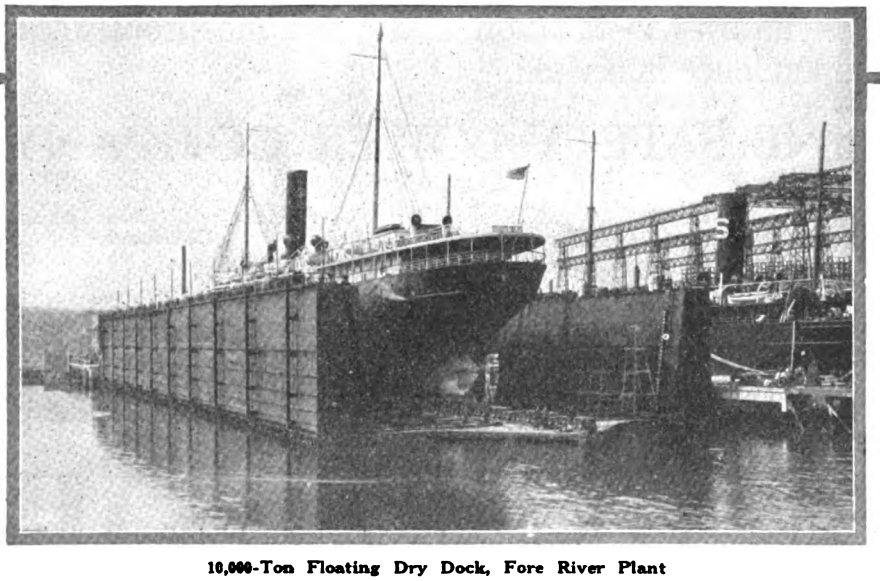
Fore River, Quincy, Mass.	Harlan, Wilmington, Del.	Union, San Francisco, Cal.
Moore, Elizabeth, N. J.	Sparrow's Point, Sparrow's Point, Md.	Redington, Redington, Pa.

DRY DOCKS

Floating Dock Quincy, Mass.	Graving Dock Wilmington, Del.	Two Floating Docks Sparrow's Point, Md.	Three Floating Docks Two Graving Docks San Francisco, Cal.	Two Marine Railways One Floating Dock Alameda, Cal.



10,000-Ton Floating Dry Dock, Fore River Plant

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

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Sales Offices

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BOSTON	BALTIMORE	ATLANTA	CLEVELAND	CHICAGO	SAN FRANCISCO

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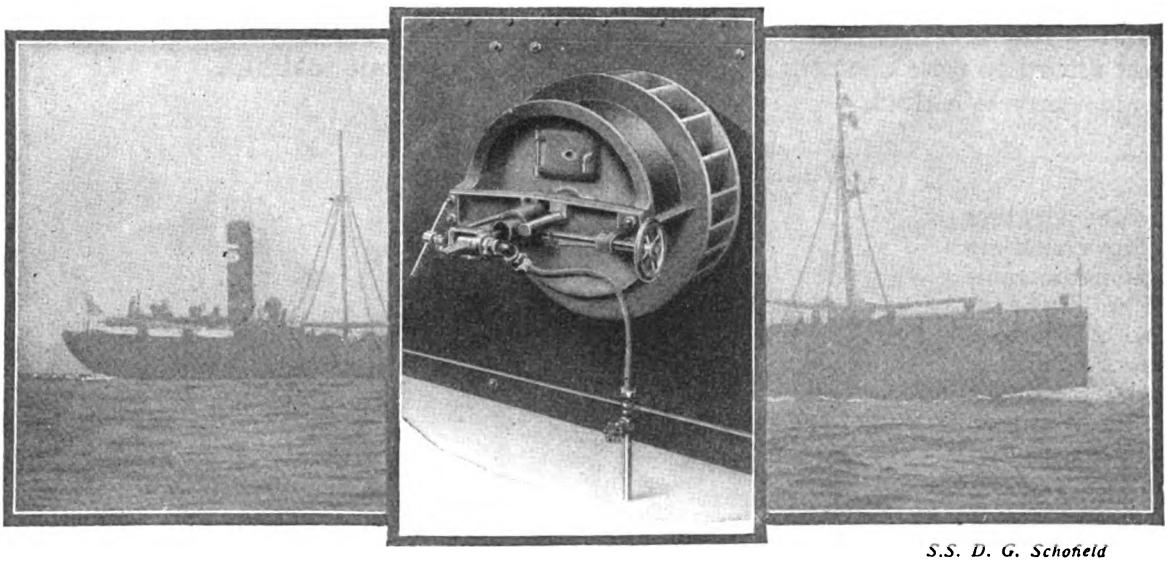
BETHLEHEM

MECHANICAL OIL BURNING EQUIPMENT



S.S. D. G. Schofield

Bethlehem (Dahl) Mechanical Oil Burning System

MORE POWER AT LESS COST

The following data is from the log of the S. S. D. G. Schofield, 11,950 ton Tanker, equipped with the Bethlehem (Dahl) Mechanical Oil Burning System:

No. of Trips.....93
Distance .....207,213 nautical miles
Period of Time Covered...3½ years
Average Fuel Oil Consumption per I. H. P. per hour .80 pounds, steaming

This is but one example of the remarkably low fuel oil consumption being obtained by Bethlehem (Dahl) installations.

Low fuel oil consumption, simplicity of operation, low first cost—these are some of the reasons why this system occupies the foremost place in marine installations.

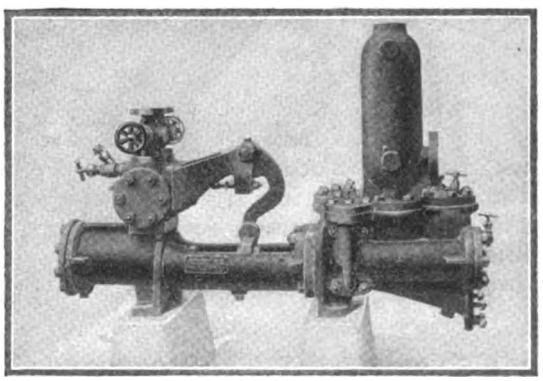
Write for Catalog O

BETHLEHEM-WEIR FUEL OIL SERVICE PUMPS

For Pumping Fuel Oil to Mechanical Oil Burners

These pumps are designed especially for delivering oil at pressures up to 200 pounds, and are guaranteed to deliver the oil at any predetermined *constant* pressure at the burner tips.

Catalogs of complete line of Bethlehem-Weir Machinery on Request



Fuel Oil Service Pump

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

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Painters stake their lives on WHITLOCK ROPE

They know they are safe, for they know Whitlock All-Manila Rope is made of the same strong, high-grade, dependable fibre straight through. It is the rope that withstands the severest outdoor tests of wind, weather and hard work. You can not afford to take chances on the rope you use for your scaffold. Play safe—buy Whitlock.

WHITLOCK CORDAGE
THE UTMOST IN ROPE VALUE

Hardware dealers and ship chandlers throughout the country are building business with Whitlock Guaranteed Cordage Products. The man who buys Whitlock comes back for more.

Whitlock All-Manila is the rope that is guaranteed superior in every respect to the U. S. Bureau of Standards Specifications.

Write today for the new Whitlock Catalog and other printed matter telling important facts about our complete line of Manila and Sisal Cordage.

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46 South Street, New York

Factory and Warehouses
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Branches
Chicago, Boston, Kansas City *and* Houston

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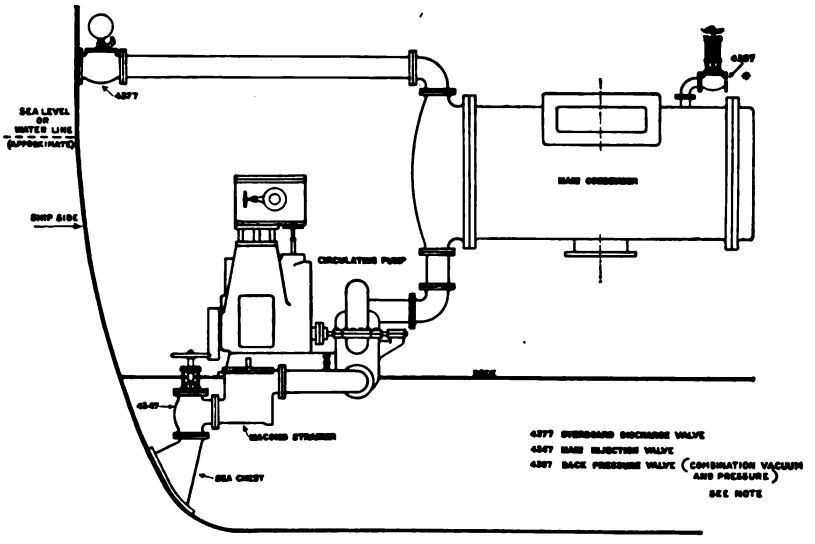
CRANE

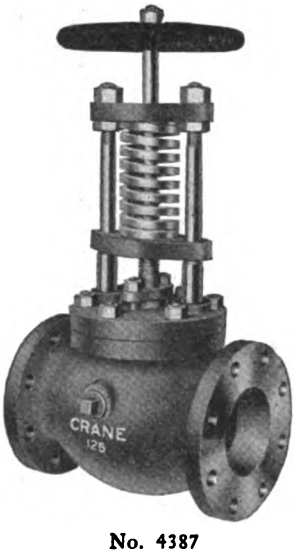
Marine Valves and Fittings



Section of a ship illustrating the method of taking water from the sea for condensing purposes.

successfully withstand all the exacting requirements of the leading inspection bureaus and may be relied upon for dependable and accurate operation under all the varying conditions of marine service.

We are manufacturers of about 20,000 articles, including valves, pipe fittings, and steam specialties, made of brass, iron, ferrosteel, cast steel and forged steel, in all sizes, for all pressures and all purposes, and are distributors of pipe, heating and plumbing materials.



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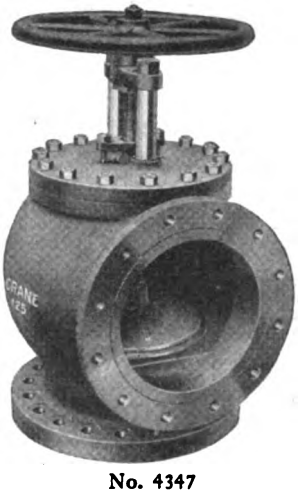

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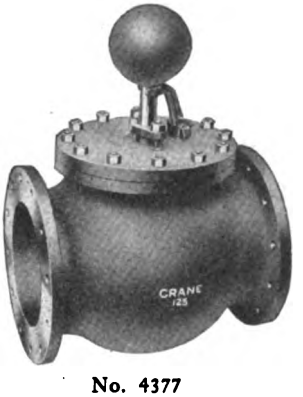

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FOUNDED BY R. T. CRANE, 1855

CRANE CO.

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"For my Ship

this rope with the red, white and blue Tape-Marker is the *only rope.* It's the Columbian Tape-Marked Pure Manila brand and its quality, strength and even service is guaranteed by the manufacturers.

Every piece of rope aboard must show the colored *Tape-Marker* to pass muster when a Captain takes pride in his ship."

COLUMBIAN ROPE COMPANY
342-90 Genesee Street
Auburn, N. Y.—"The Cordage City"
Branches:—New York - Boston - Chicago - Baltimore - Houston

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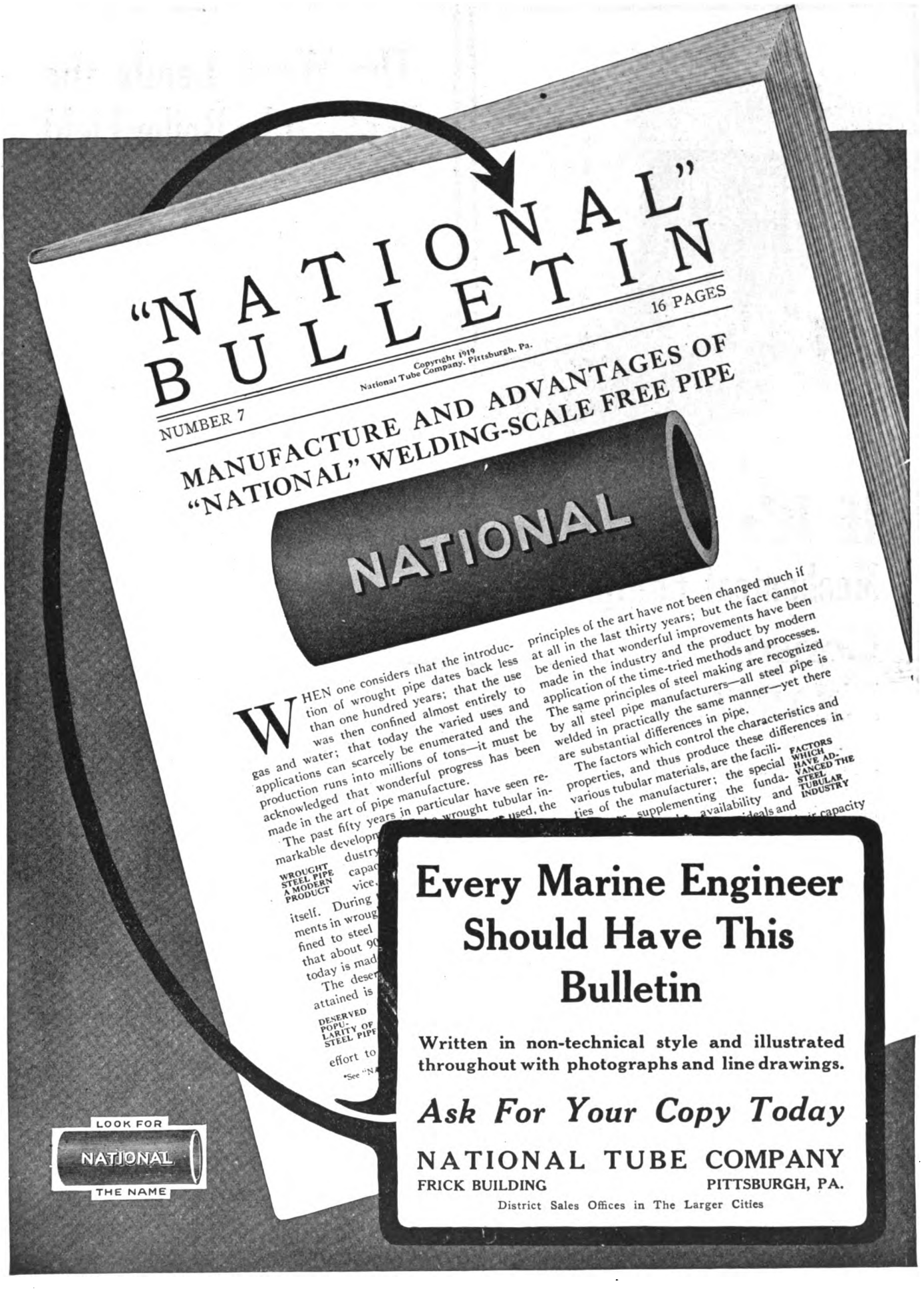
"NATIONAL" BULLETIN
16 PAGES
NUMBER 7
Copyright 1919 National Tube Company, Pittsburgh, Pa.
MANUFACTURE AND ADVANTAGES OF "NATIONAL" WELDING-SCALE FREE PIPE
NATIONAL
WHEN one considers that the introduction of wrought pipe dates back less than one hundred years; that the use was then confined almost entirely to gas and water; that today the varied uses and applications can scarcely be enumerated and the production runs into millions of tons—it must be acknowledged that wonderful progress has been made in the art of pipe manufacture.
The past fifty years in particular have seen remarkable develop
dustry
capac
vice.
itself. During
ments in wroug
fined to steel
that about 90
today is mad
The deser
attained is
effort to
WROUGHT STEEL PIPE A MODERN PRODUCT
DESERVED POPULARITY OF STEEL PIPE
principles of the art have not been changed much if at all in the last thirty years; but the fact cannot be denied that wonderful improvements have been made in the industry and the product by modern application of the time-tried methods and processes. The same principles of steel making are recognized by all steel pipe manufacturers—all steel pipe is welded in practically the same manner—yet there are substantial differences in pipe.
The factors which control the characteristics and properties, and thus produce these differences in various tubular materials, are the facilities of the manufacturer; the special
supplementing the funda-
availability and
FACTORS WHICH HAVE ADVANCED THE STEEL TUBULAR INDUSTRY
Every Marine Engineer Should Have This Bulletin
Written in non-technical style and illustrated throughout with photographs and line drawings.
Ask For Your Copy Today
NATIONAL TUBE COMPANY
FRICK BUILDING PITTSBURGH, PA.
District Sales Offices in The Larger Cities
LOOK FOR
NATIONAL
THE NAME

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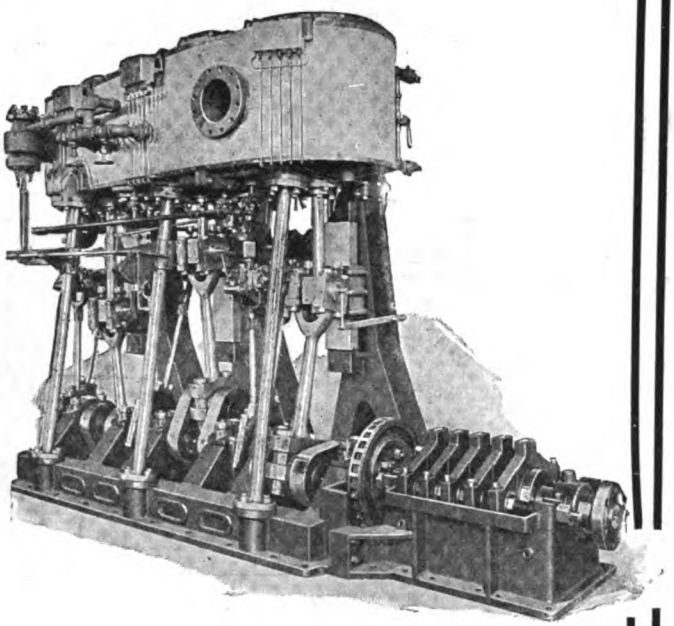


If It's Marine Mechanical Equipment Consult KEARFOTT

—Because that is the best way to assure yourself that the equipment selected will be best suited to your particular needs.

—because you gain the advantage that Kearfott's close manufacturing connections bring

—because Kearfott Service is at your disposal—

—because of prompt deliveries

—because Kearfott can supply all marine mechanical equipment from engines to anchor chains

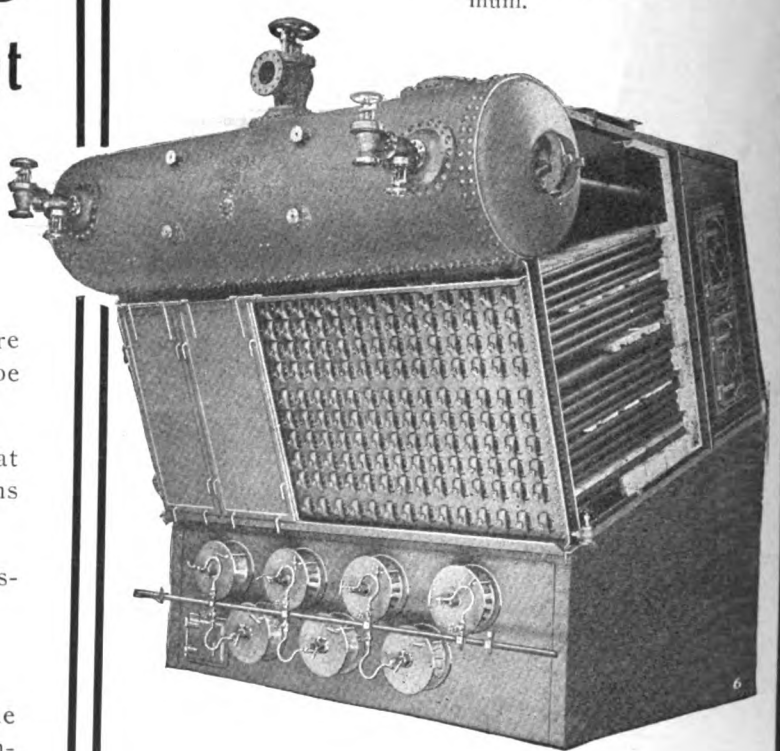
—and because Kearfott has served both ship owners and masters for many years and knows the needs of each.

Kearfott Engineering Co., Inc.
95 Liberty Street, New York

K-38

The Ward Leads the Watertube Boiler Field

In first cost	The Ward Watertube Boiler costs far less than others of its class.
In installation	Large units may be shipped ready to be lowered to their settings.
In weight	Horsepower for horsepower Ward Boilers are much lighter in weight and outrank Scotch boilers in capacity.
In economy	Evaporation tests show 17 pounds of water to one pound of oil.
In long life and upkeep	Seamless drawn tubes—absence of nipple connections — absence of stay-bolts—and all-steel construction, secure an unsurpassed durability and cut upkeep costs to a minimum.



Now is the time to buy Ward Boilers for the ship on the ways.

Write for descriptive literature.

The Charles Ward Eng. Works
Charleston, W. Va.

Eastern Agent
Kearfott Engineering Co., Inc., 95 Liberty St., N. Y.

WB-38

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Hudson Terminal

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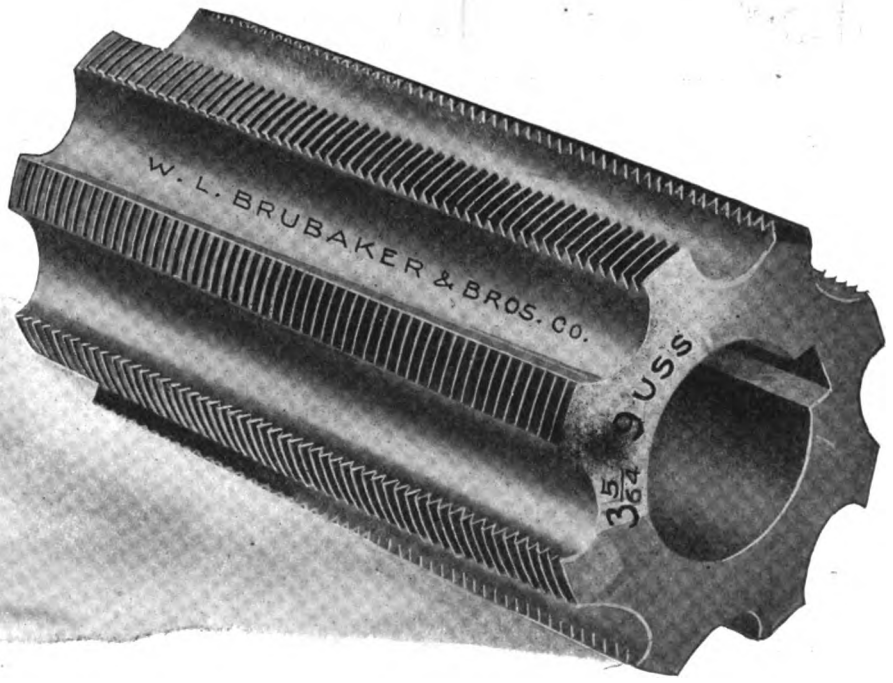
Mfrs.
Taps, Dies & Reamers
Common Sense Screw Plates

Factory at
Millersburg, Pa.

STAY-TUBE TAPS

ALL SIZES — ANY LENGTH
FURNISHED IN TEN DAYS



Special Temper—Well Relieved—Easy Cutting—Best Grade Tool Steel.
Manufactured by Us Many Years—Carbon or High Speed Steel as Desired.

W. L. BRUBAKER & BROS. CO.

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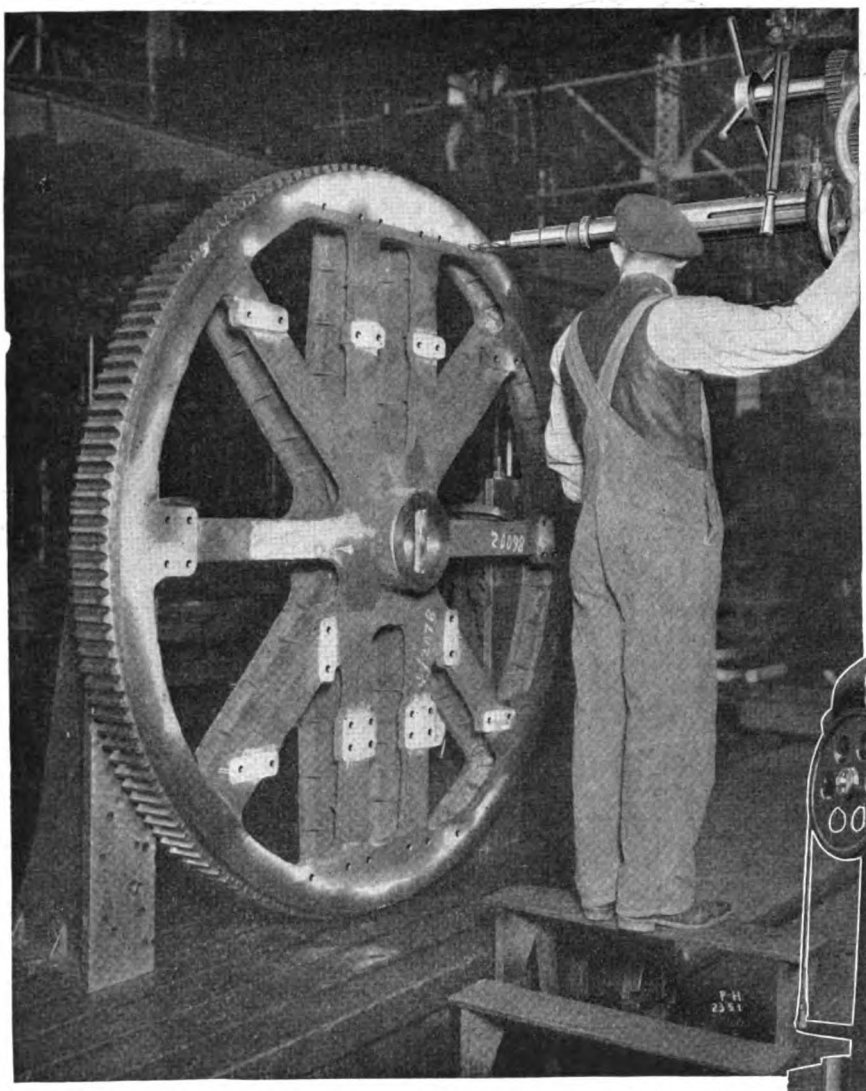


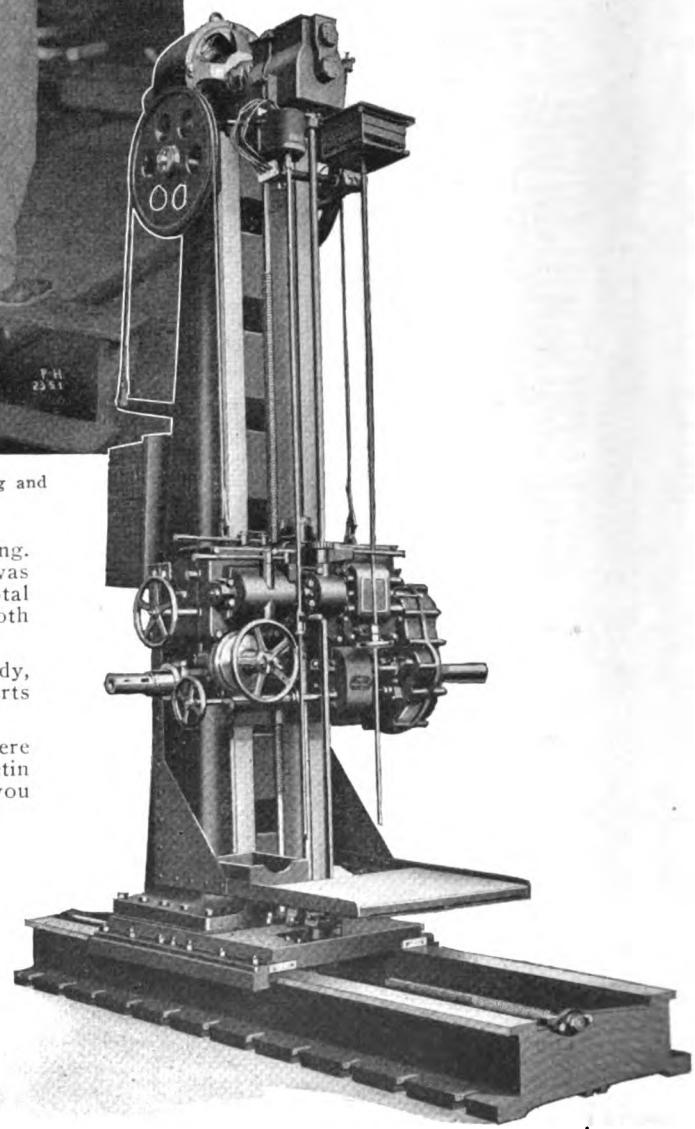
Keeping Costs Down by Simplifying Set-up and Handling

P & H Drilling and Boring Machines cut down the time of drilling and back-facing. Operator can easily watch work on both sides

HERE is a job requiring drilling of 50 holes and backfacing. One man set it up. The drilling and backfacing was done quickly and with no further handling. The total drilling time was only a little more than a minute a hole. Both sides of the piece worked on were readily accessible.

P & H Drilling and Boring Machines are making speedy, accurate work of this kind possible in many plants in all parts of the country.

In looking for means of reducing costs in your shop, there is no better time than the present to get our descriptive Bulletin 214. A request sent to any of the addresses below will bring you a copy and any specific information you may desire.



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P&H HORIZONTAL DRILLING & BORING MACHINES

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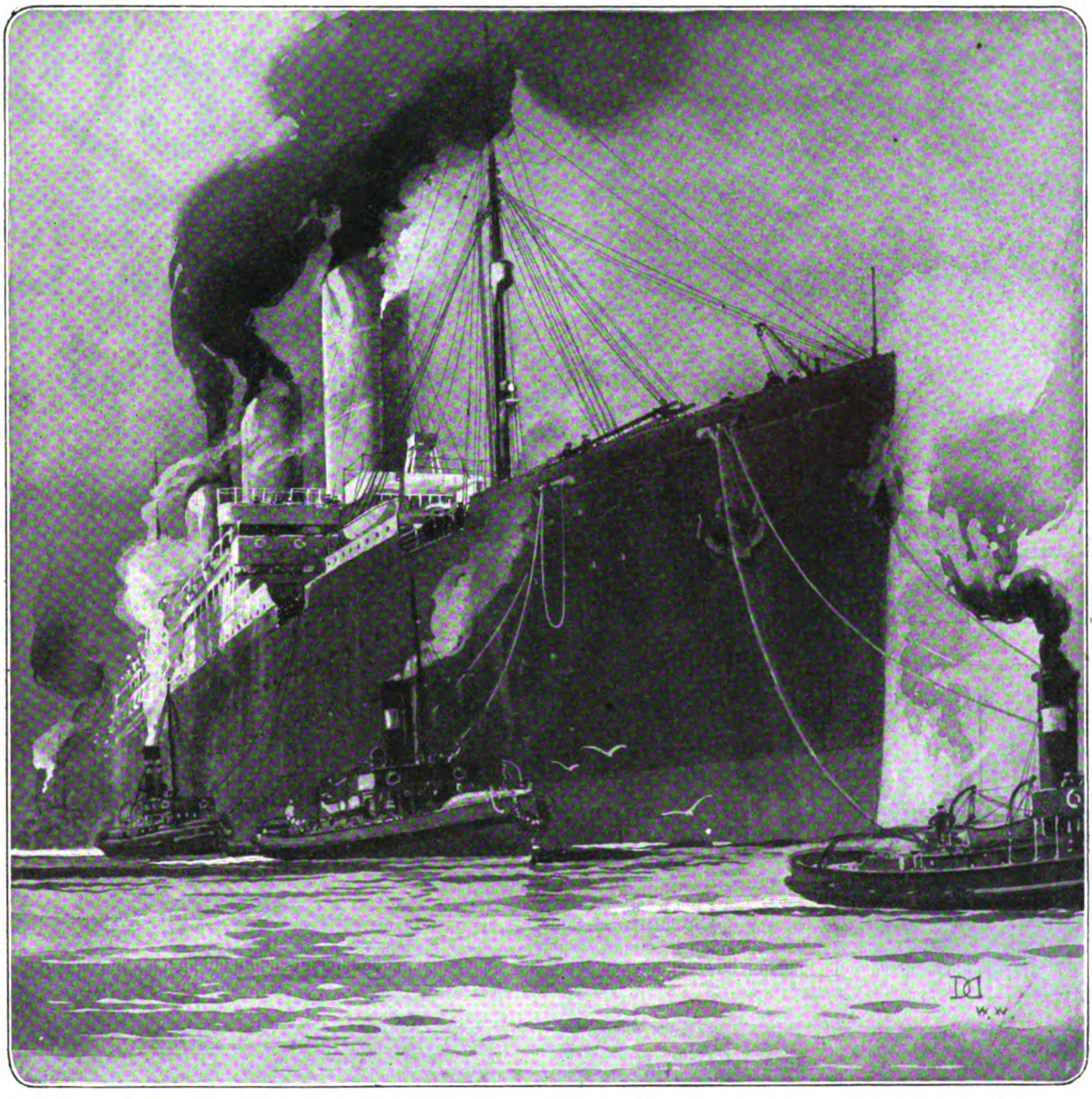

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"Wall" Manila Hawsers
Always Merit the great Trust imposed

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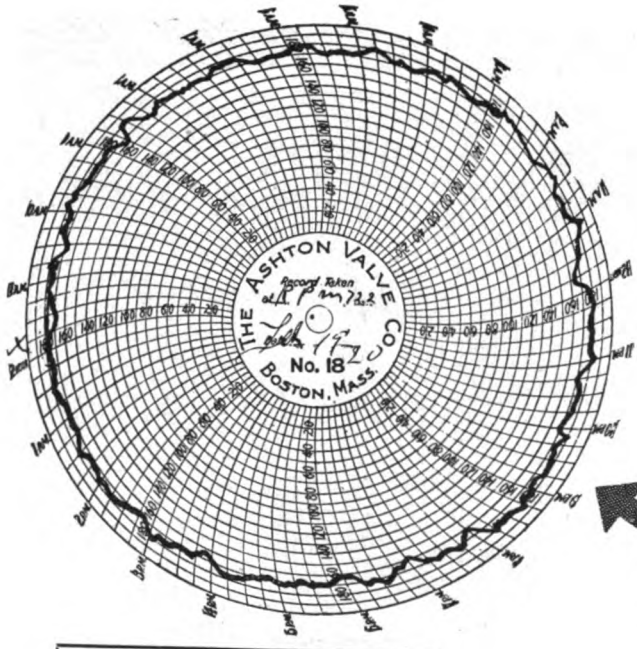


BEFORE
Installing Diamond Soot Blowers on S. S. Delfina
Stack Temperatures 600° to 615°
Average Revolutions about 72

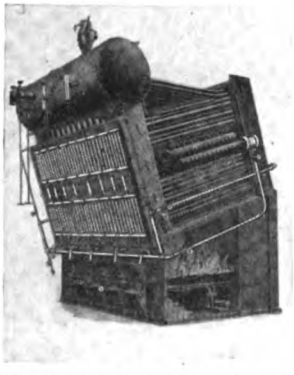
Which?

Do Your Boiler Logs Show High or Low Operating Costs?

It is just as easy, and a great deal more satisfactory and desirable to operate your vessel economically as regards the power end, rather than wastefully. Take the case of the S. S. "Delfina," a Shipping Board vessel now operated by the Munson Line and running between New York and Buenos Aires. This vessel was originally a poor steamer; the stack temperatures were very high and the stack had taken fire due to the increased accumulation of soot. In order to eliminate these troubles and to decrease the fuel consumption, and increase the boiler efficiency, Diamond Soot Blowers were installed.

An immediate difference was apparent. The chart above, taken before the installation of Diamond Soot Blowers, shows an average steam pressure of 180 pounds. The average revolutions of the engine were 72 and stack temperatures were 600 to 615 degrees. As soon as Diamonds were installed the average boiler pressure jumped to 200 pounds, where it was easily maintained, the stack temperatures decreased to 450 to 475 degrees, and the average revolutions increased to about 80 per minute. A very marked saving in fuel also resulted. As a result of these savings, all of which are directly traceable to Diamond Soot Blowers, the Delfina now operates on a much more economical basis than ever before.

Diamond Soot Blowers are the best paying investment you can place in your vessel. For further information write for Bulletin No. 134.



The Delfina has Foster Boilers equipped with Diamond Soot Blowers

The blowers are of the front end type with nozzles extending through the hollow staybolts. The blowers are made up in vertical sections, each under the control of an individual valve. This arrangement permits of blowing three or four vertical rows of tubes at one time, thus avoiding all interference with the draft. Over 300 Foster Marine watertube boilers have been equipped with Diamond Soot Blowers.

"It gives me great pleasure to state that Diamond Soot Blowers have made good every claim made for them.

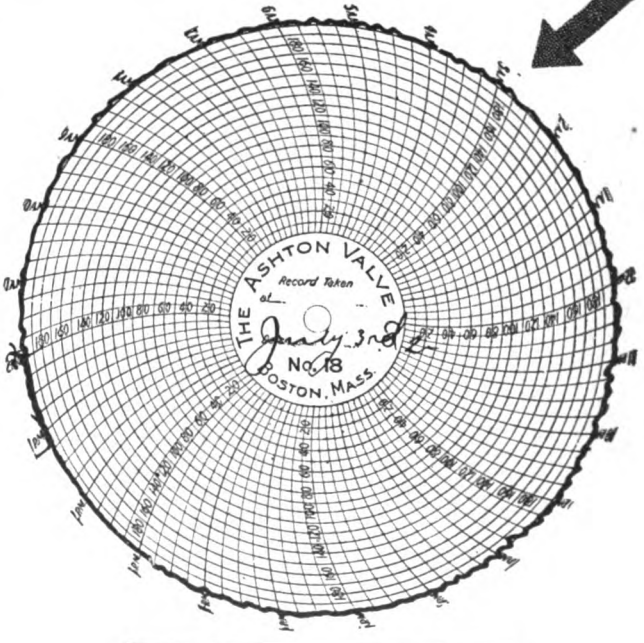
"The S. S. Delfina is equipped with three Foster Boilers and uses oil fuel.

"On voyage from Gulfport, Miss., to Buenos Aires the following averages were obtained:

Steam pressure 200 pounds,
Revolutions of main engines, 79.5 per minute.
Fuel consumption, 68.7 barrels per 100 miles.
Stock temperature, 440 degrees.

"I, therefore, recommend Diamond blowers for all types of boilers using coal or oil for fuel."

F. W. Failmore,
Chief Engineer.



AFTER
Installing Diamond Soot Blowers on S. S. Delfina
Stack Temperatures 450° to 475°
Average Revolutions about 80

DIAMOND POWER SPECIALTY COMPANY
Detroit, Michigan

Diamond

SOOT BLOWERS - SAVE 4 to 8% FUEL

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ON THE ADMIRALTY LIST

ALEXANDER STEPHEN & SONS, Ltd.

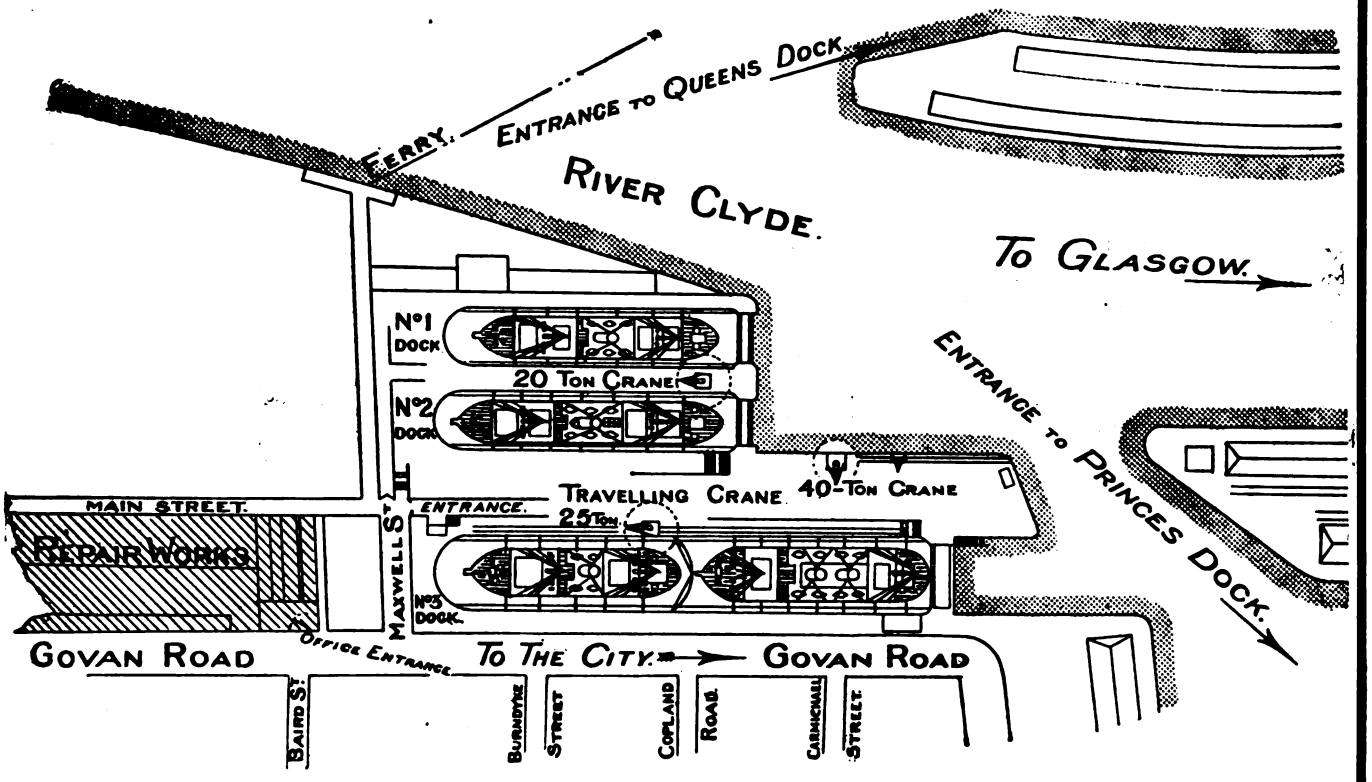
Shipbuilders——Engineers——Boilermakers

GOVAN GRAVING DOCK REPAIR WORKS

OFFICE: 604 GOVAN ROAD

GLASGOW

VESSELS DOCKED AND PAINTED AND REPAIRS OF ALL KINDS EXECUTED TO HULLS, MACHINERY AND BOILERS WITH UP-TO-DATE APPLIANCES, INCLUDING OXY-ACETYLENE CUTTING AND ELECTRIC WELDING PLANTS.



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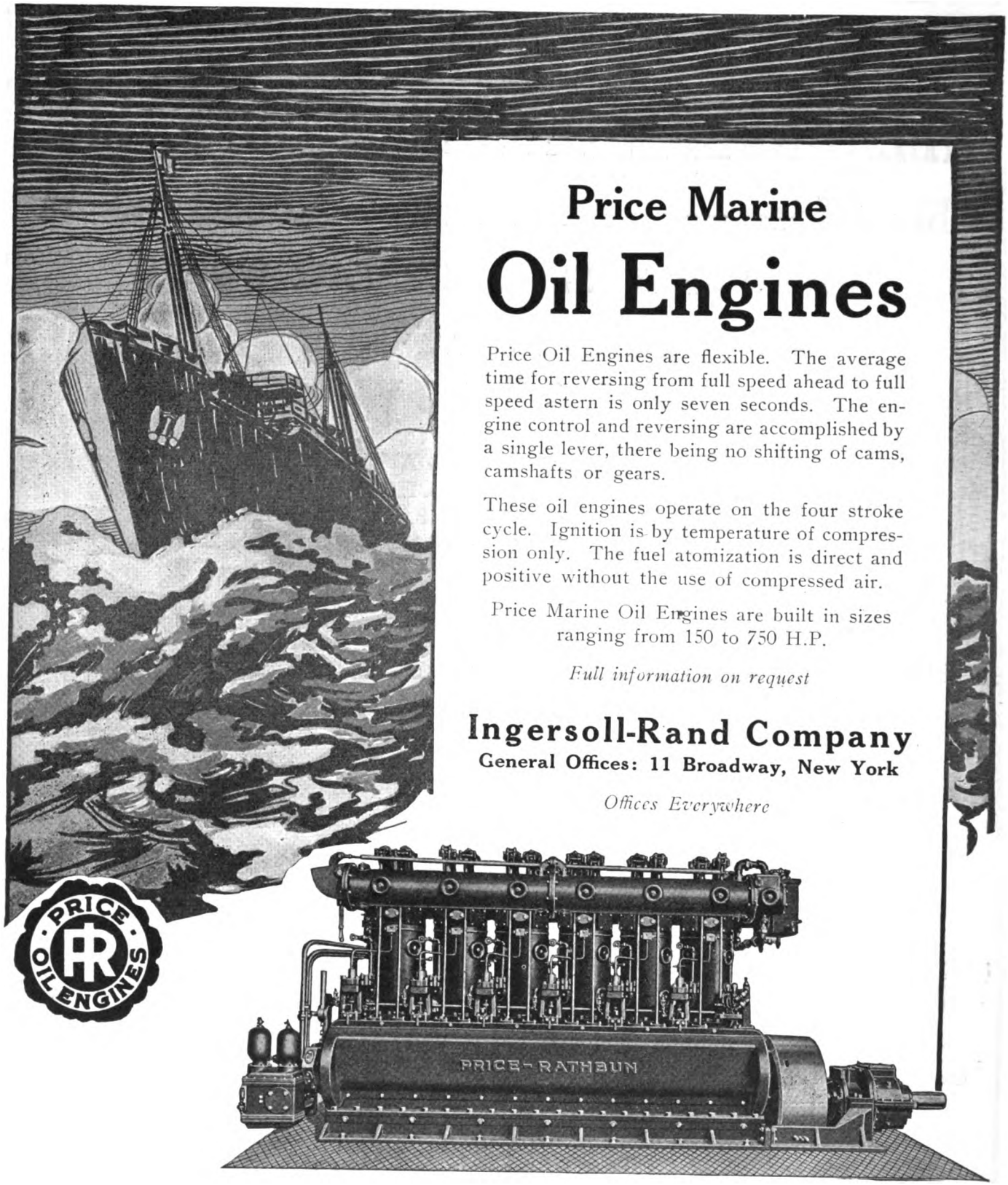

Price Marine

Oil Engines

Price Oil Engines are flexible. The average time for reversing from full speed ahead to full speed astern is only seven seconds. The engine control and reversing are accomplished by a single lever, there being no shifting of cams, camshafts or gears.

These oil engines operate on the four stroke cycle. Ignition is by temperature of compression only. The fuel atomization is direct and positive without the use of compressed air.

Price Marine Oil Engines are built in sizes ranging from 150 to 750 H.P.

Full information on request

Ingersoll-Rand Company

General Offices: 11 Broadway, New York

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PRICE OIL ENGINES

PRICE-RATHBUN

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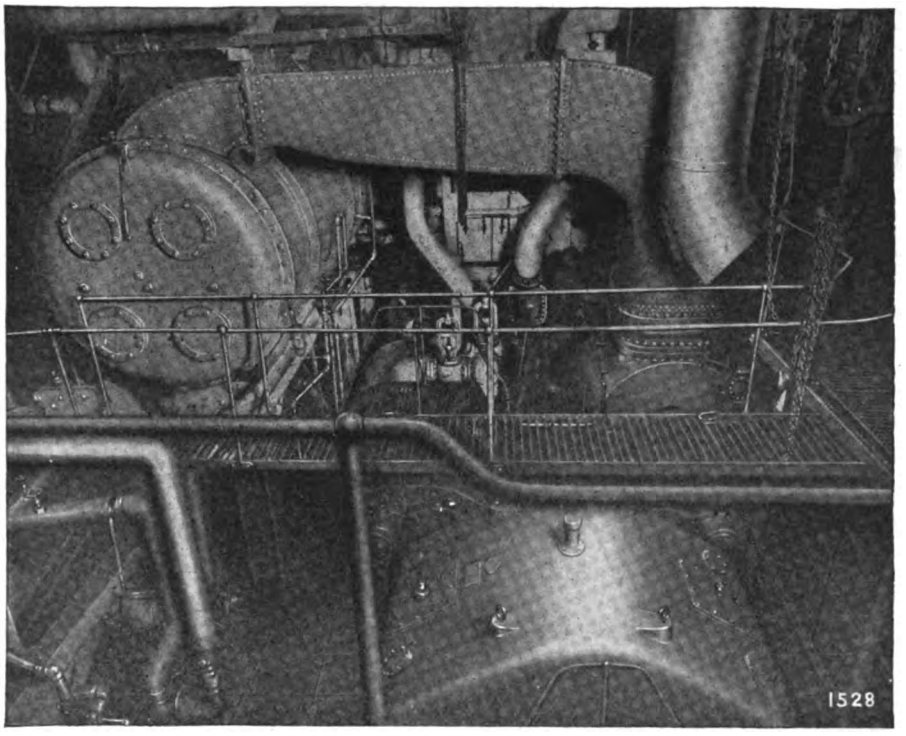
TURBINES *for* TANKERS



THE accompanying photograph shows a De Laval 3300-hp. compound double-geared marine turbine installed in the tanker W. M. BURTON. De Laval geared turbines are now being installed because of their reliability in five tankers of this type.

A visit to the engine room of such a ship will impress you with a very important fact, namely:

De Laval Gears Are Practically Noiseless

The absence of noise indicates correct design, proper cutting and finish and adequate support. It also foretells long wear and satisfactory service, and is a sure sign of high efficiency.

Noisy gears are objectionable for other reasons than that they soon wear out and give trouble. They deafen the crew, interfering with the most delicate and reliable means of detecting trouble, namely, the sense of hearing. Hearing is relied upon more than sight or touch in discovering and locating trouble in machinery. De Laval gears are practically noiseless.

Over 2,000,000 hp. of De Laval marine gears are in service and many of them have each made over 200,000 miles.

If you are interested in motive power for ships, give dimensions and conditions of service, and our Engineering Department will submit suggestions and drawings. Have you read our Marine Catalog M-46?

De Laval
Steam Turbine Co.
TRENTON, N. J.

174

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LONG-BELL

TRADE-MARKED

Ship Timbers—Decking Piling—Sheet Piling Wood Blocks

These products from the mills of The Long-Bell Lumber Company, designed especially for marine purposes, are cut from exceptional stands of *Long Leaf* Southern Pine, the wood recognized by marine engineers everywhere as being unsurpassed for their unusual requirements.

Among the *added values* back of every shipment of Long-Bell products is exacting supervision of manufacture in thoroughly modern mills; unusual uniformity of grading; individual attention to orders; shipping supervision to prevent damage; large and diversified stocks; prompt shipments; and, very important, *the name of the manufacturer branded upon the product to show the buyer he is receiving without question these added values.*

Long-Bell Creosoted Piling is treated full length by pressure. The cells of the sapwood are filled with Creosote Oil, making the wood impervious to borers, bacteria, fungi and moisture.

The Long-Bell Lumber Company

R. A. LONG BUILDING Lumbermen since 1875 KANSAS CITY, MO.

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See that your Power Plant Apparatus is Monel equipped

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The Foxboro Co., Inc.
Simplex Valve & Meter Co.

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U.S. Indestructible Gasket Co.
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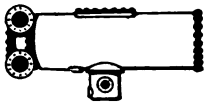
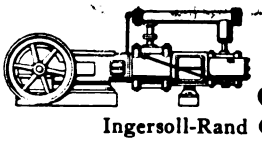


CONDENSERS
Westinghouse Electric & Manufacturing Co.

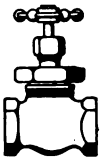
GOVERNORS
Waters Governor Co.
The C. E. Squires Co.
Northern Equipment Co.
S. C. Regulator Co.

INSTRUMENTS
The Bristol Company
Lewis M. Ellison
Schaeffer & Budenberg
Taylor Instrument Co.
Foxboro Co.
Brown Instrument Co.
Jos. W. Hays Corp.
American District Steam Co.

DIESEL ENGINES
De La Vergne Machine Co.
Nordberg Mfg. Co.



COMPRESSORS
Ingersoll-Rand Co.



VALVES
The C. E. Squires Co.
The Fisher Governor Co., Inc.
Mason Regulator Co.
Consolidated Engine Stop Co.
G. M. Davis Regulator Co.
Foster Engineering Co.
Ford Regulator Co.
Schutte & Koerting
Ruggles-Klingemann Mfg. Co.
Pittsburgh Valve, Foundry & Construction Co.
The Lunkenheimer Co.
Pratt & Cady
Walworth Mfg. Co.
Edward Valve & Mfg. Co.
Star Brass Mfg. Co.
Manning, Maxwell & Moore, Inc.
A. W. Cadman Mfg. Co.
Everlasting Valve Co.
Kennedy Valve Mfg. Co.
The Coale Muffler & Safety Valve Co.
J. E. Lonergan Co.
Powers Regulator Co.
Illinois Engineering Co.
Yarnall Waring Co.
Nelson Valve Company
American Foundry & Construction Co.
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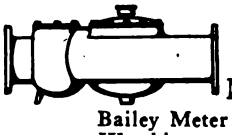
Jenkins Bros.
Henry Vogt Machine Co.
National Regulator Co.
Powell Valve Co.
Lagonda Mfg. Co.

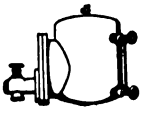
TURBINES
Westinghouse Electric & Mfg. Co.
The Terry Steam Turbine Co.
Bethlehem Shipbuilding Corp., Ltd.
DeLaval Steam Turbine Co.
The American Brass Co.
Ingersoll-Rand Co.



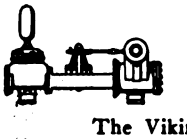
METERS
Bailey Meter Co.
Worthington Pump and Machinery Corp.
Pittsburgh Meter Co.
Equitable Meter Co.

SOOT BLOWERS
Everlasting Valve Co.
Vulcan Soot Cleaner Co.

PRESSURE REGULATORS
Mason Regulator Co.
National Regulator Co.
Foster Engineering Co.
Boylston Steam Specialties Co.
Equitable Meter Co.
Ford Regulator Corp.
S. C. Regulator Mfg. Co.
Julian D'Este



TRAPS
Wright Austin Company
Sarco Company
The Fisher Governor Co., Inc.
The C. E. Squires Co.
Templeton Mfg. Co.
Elliott Co.



PUMPS
The Viking Pump Company
Blackmer Rotary Pump Co.
American Well Works
Worthington Pump and Machinery Corp.
Twinvolute Pump & Mfg. Co.
Chas. S. Lewis & Co.
Pennsylvania Pump & Compressor Co.
Manistee Iron Works Co.

EXHAUSTERS
Schutte & Koerting

AIR SEPARATORS
Elliott Company

THIS is a partial list of manufacturers who insure the proper performance of their products by writing Monel metal into their specifications.

Monel is as strong as steel and has practically the same co-efficient of expansion. It is unaffected by alkalies and most acids and simply will not rust. There is no other metal possessing this balance of qualities. So more and more operators of power plants are substituting Monel parts in their old apparatus and insisting upon the use of Monel in all new equipment.

INCO MONEL METAL

The name Monel identifies the natural nickel alloy—67% nickel, 28% copper and 5% other metals—produced by The International Nickel Company. Monel products include Monel blocks, Monel rods, Monel castings, Monel sheet, Monel wire, Monel strip stock, etc.

INCO NICKEL

THE INTERNATIONAL NICKEL COMPANY

Producers of Metallic Nickel in the forms of Ingot, Shot, Electrolytic Cathodes—99 8/10% Malleable Nickel, Nickel Salts, Oxides, Carbonates, Sulphates, Sulphides, Acetates, Formates—Monel Metal, Ingot, Shot, Blocks.

67 Wall Street **New York City**

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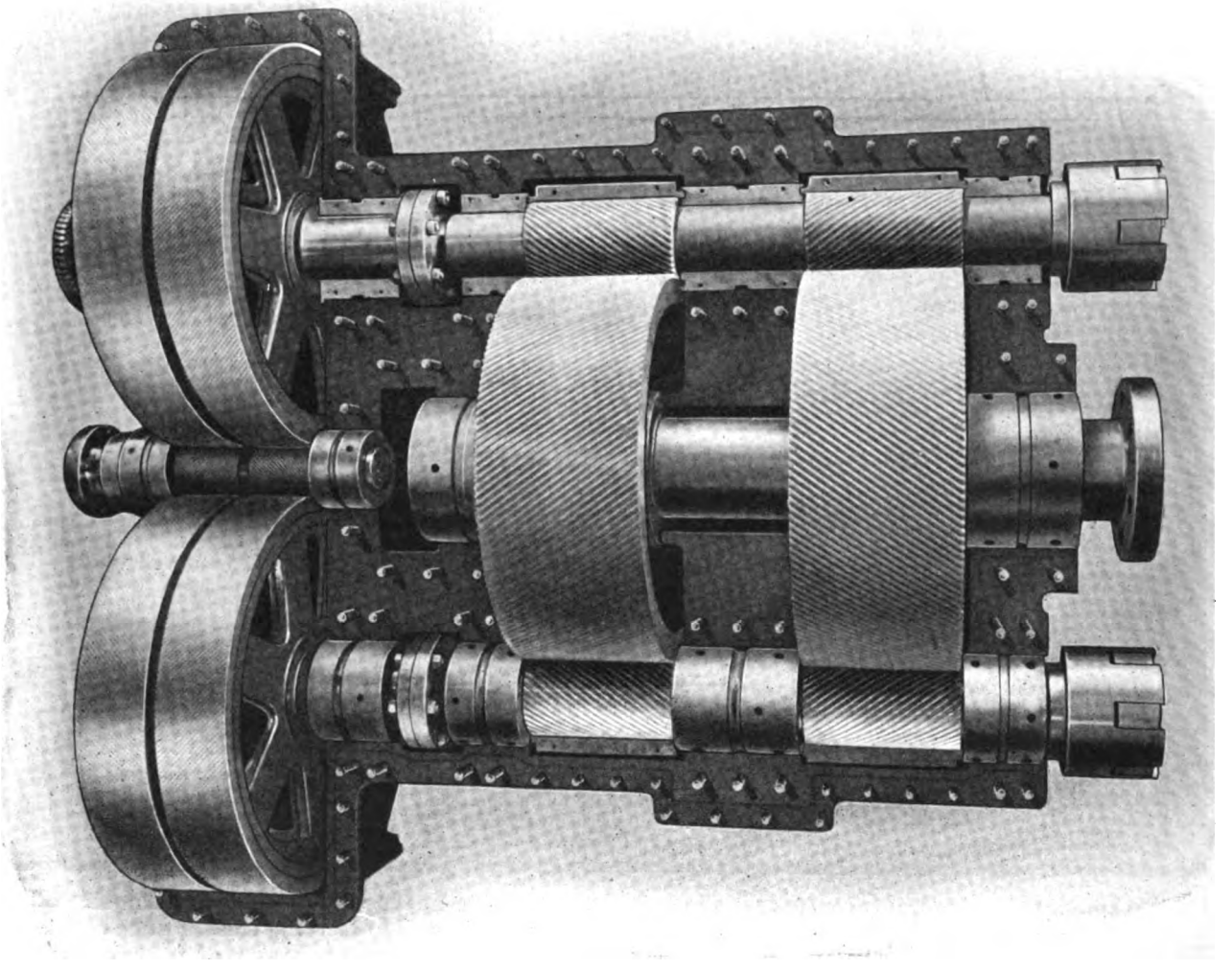
KERR

MARINE REDUCTION GEARS

100% ACTUAL PERFORMANCE

QUIET—RELIABLE EFFICIENT



Plan View (cover removed) 2500 to 3000 S.H.P. Type

Manufacturers of Geared Turbine Propelling Machinery in capacities up to 6000 S.H.P.
Also Turbine Driven Auxiliaries, all sizes.

KERR TURBINE COMPANY

WELLSVILLE **NEW YORK**

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CINCINNATI, OHIO, Mercantile Library.
CLEVELAND, OHIO, 1900 Euclid Ave.
DALLAS, TEXAS, Southwestern Life Bldg.
DETROIT, MICH., Kerr Machinery Bldg.
DULUTH, MINN., Lyceum Bldg.
KANSAS CITY, MO., 419 Reliance Bldg.
LOS ANGELES, CALIF., 507 E. Third St.
NEW ORLEANS, LA., 712 Poydras St.
NEW YORK, N. Y., 30 Church St.
PHILADELPHIA, PA., Stock Exch. Bldg.
PITTSBURGH, PA., Oliver Bldg.
PORTLAND, ORE., Lewis Bldg.
SAN FRANCISCO, CAL., Sharon Bldg.
ST. LOUIS, MO., Boatman's Bank Bldg.
MONTREAL, CANADA, Southam Bldg.
WINNIPEG, CANADA, 207 Scott Block.
LONDON, ENGLAND, 11 Carteret St.
HONOLULU, T. H.
SHANGHAI, CHINA.
TOKIO, JAPAN.
HAVANA, CUBA.

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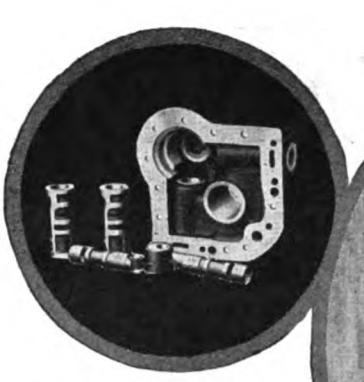
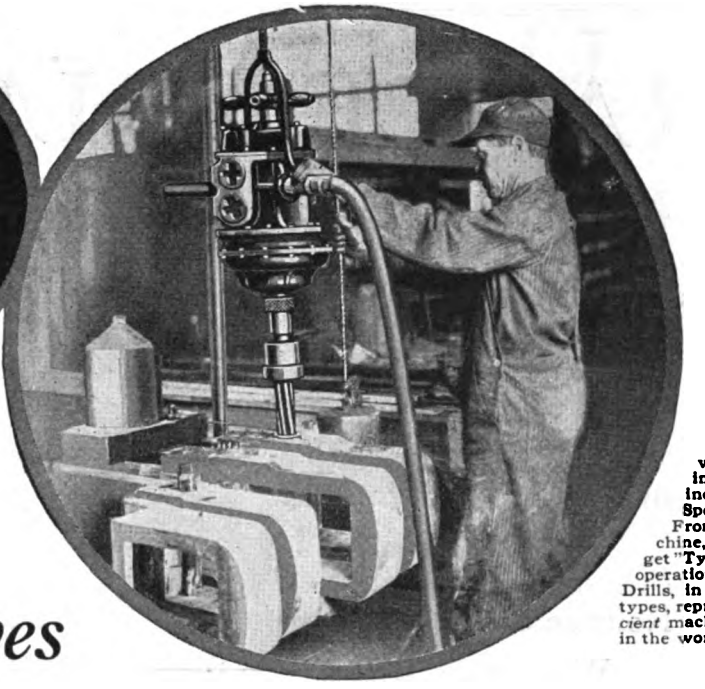


Balanced Piston Valves—a *Little Giant* feature.



Little Giant Air Drill, No. 15R, reversible type. Drilling capacity, up to 3-inch holes in metal. Speed light, 80 R. P. M. From this powerful machine, down to the "Midget" Types for light drilling operations, Little Giant Air Drills, in their 67 sizes and types, represent the *most efficient* machines of their kind in the world!

Why the Valves in Little Giants resist wear indefinitely

WHEN two objects are rubbed together, friction is created and wear results. The harder they are pressed, the greater the wear. When air drill valves, held to their seats by pressure, are constantly rubbing together, wear is inevitable. With 100 pounds of air pressure entering a drill directly against valves, wear results. As the valve wears, it becomes smaller in diameter and its seat larger, causing leakage, and making valve replacements necessary.

Not so with Little Giant Air Drills. "*Long-wearing* and *leak-proof*" defines their balanced piston valves. They have no pressure holding them to their seats. Being balanced in all directions they require none; and moving but 1-20th of their length and devoid of rocker arms and gears, they require no appreciable power to operate, consequently remain tight indefinitely.

Furthermore, the eccentric being connected directly to the valve, eliminates unnecessary joints which cause lost motion and retard prompt opening and closing of the valves. The valve motion is so timed that the compression pressure, on the closing of the exhaust port at the finish of the stroke, almost equals that of the air supply line pressure. This timing would be impossible with any valve held to its seat by pressure, but with balanced piston valves, all waste air space, such as ports and cylinder clearance, is filled to air-line pressure before live air is admitted to the cylinders. Result—the *most efficient and economical air drill yet developed!*

Isn't this the kind of a drill you need in your plant to cut manufacturing and shop costs? Know all about Little Giant features. Address the nearest Branch for Engineering Service—rendered without obligation. Also ask for Bulletin 598.

Chicago Pneumatic Tool Company

Chicago Pneumatic Building - 6 East 44th Street - New York

*Sales and *Service Branches all over the World*

*Birmingham *Boston *Buffalo *Chicago *Cincinnati *Cleveland *Detroit St. Paul Erie Franklin Houston Joplin *Los Angeles *Minneapolis *New Orleans *New York *Philadelphia *Pittsburgh Richmond Salt Lake City *San Francisco *Seattle *St. Louis Basle *Berlin Bombay Brussels *Buenos Aires Christiania Copenhagen *Madrid Havana Helsingfors *Stockholm Johannesburg *London Manila Milan Montevideo *Montreal Omaha Paris Rio de Janeiro *Rotterdam Santiago San Pedro Seoul Shanghai Tientsin Tokyo Toronto Vancouver Winnipeg

P-102

BOYER PNEUMATIC HAMMERS · · LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
CHICAGO PNEUMATIC AIR COMPRESSORS · · VACUUM PUMPS · · PNEUMATIC HOISTS,
GIANT OIL AND GAS ENGINES — ROCK DRILLS · · COAL DRILLS

LITTLE *The World's Standard* GIANT *Air Drill*

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BRADLEY HAMMER

Forging Steel Ship Liners

Wherever ships are being built Bradley Hammers are pounding away at their "bit."

They are built to stand the continuous strain of heavy work.

They are **accurate** and **rapid,** and attain big results in many kinds of forging.

With a **"Bradley"** you are sure of perfect control. Pressure on the foot treadle sets the hammer in motion. Release of the treadle stops the hammer.

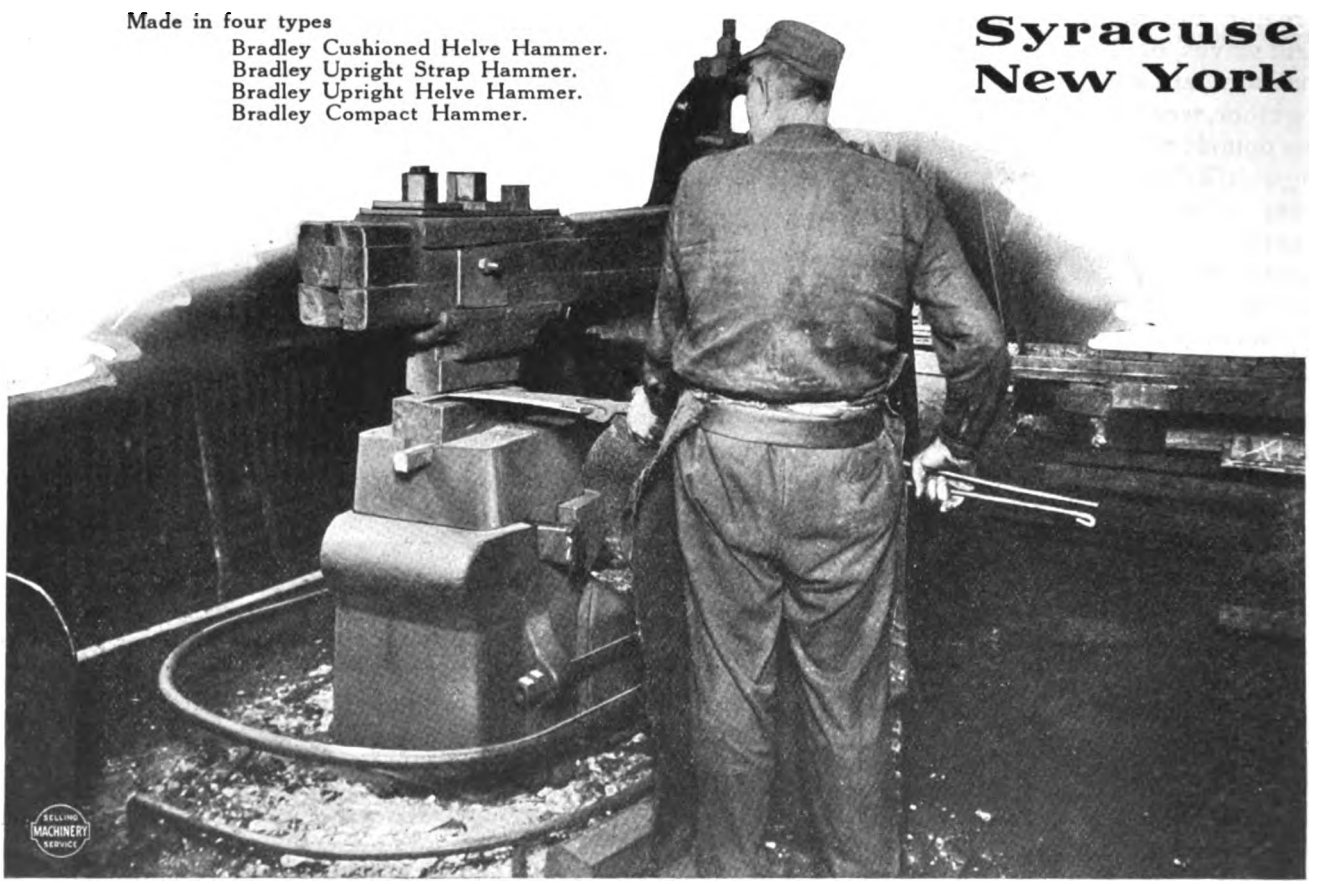
We have a series of bulletins describing our **Bradley Hammers**—Belt and Motor Drive—also **Bradley Forges.** We will be glad to send them in return for your postal.

C. C. BRADLEY & SON, Incorporated

Established in 1832

Made in four types
Bradley Cushioned Helve Hammer.
Bradley Upright Strap Hammer.
Bradley Upright Helve Hammer.
Bradley Compact Hammer.

Syracuse New York



"FORGE AHEAD WITH A BRADLEY HAMMER"

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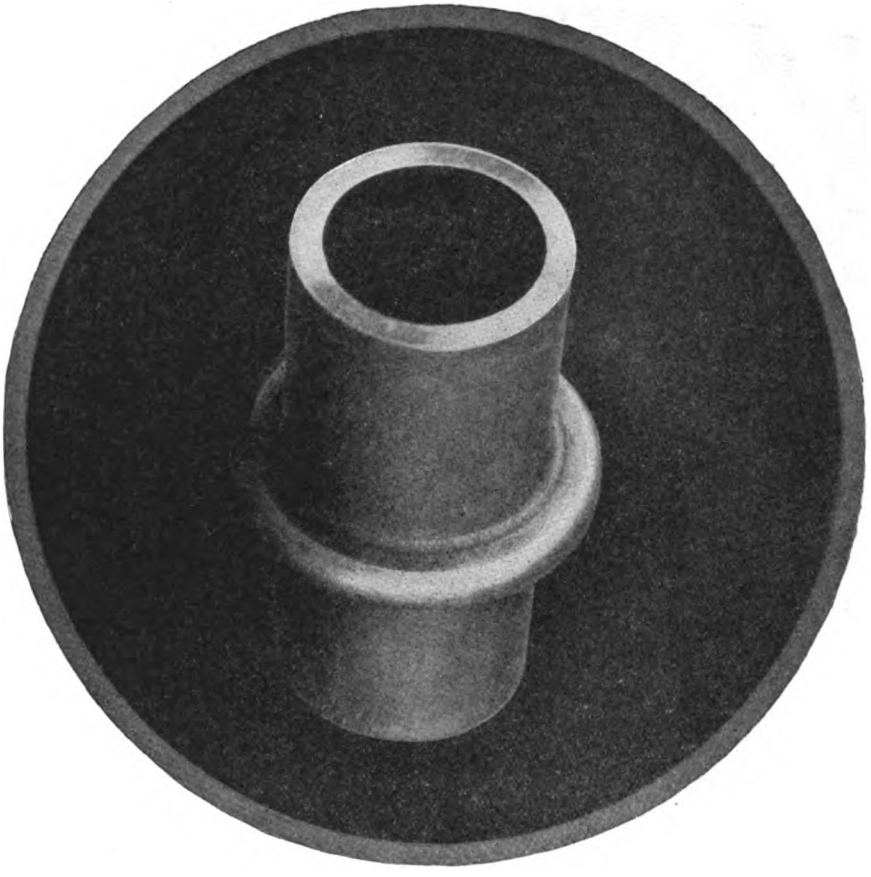
Another SCOVILL Product



Quality—

SINCE 1802

For over one hundred and eighteen years the name of SCOVILL has been synonymous to QUALITY in the Brass World. Such a reputation is a most valuable asset, and every article shipped from the factory helps to maintain that standard set by the founders so many years ago.

MAY WE QUOTE ON YOUR TUBE REQUIREMENTS?

SCOVILL MANUFACTURING COMPANY
ESTABLISHED 1802
WATERBURY, CONNECTICUT

ROCHESTER
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NEW YORK
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Service SCOVILL Quality

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Ship Supplies
and Equipment
Fire Extinguishers
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Life Preservers, Wire Rope Hawsers, Hoisting and Rigging Wires

We carry largest stock of ship supplies of all kinds

Send for Our illustrated catalog

We carry full line of "WEW" Bronze and Iron Body Valves—The "WEW" is the heaviest and best Marine Valve made

Immediate Deliveries made by Our Own Motor Trucks

WILLIAM E. WILLIAMS

62 FRONT STREET, NEW YORK

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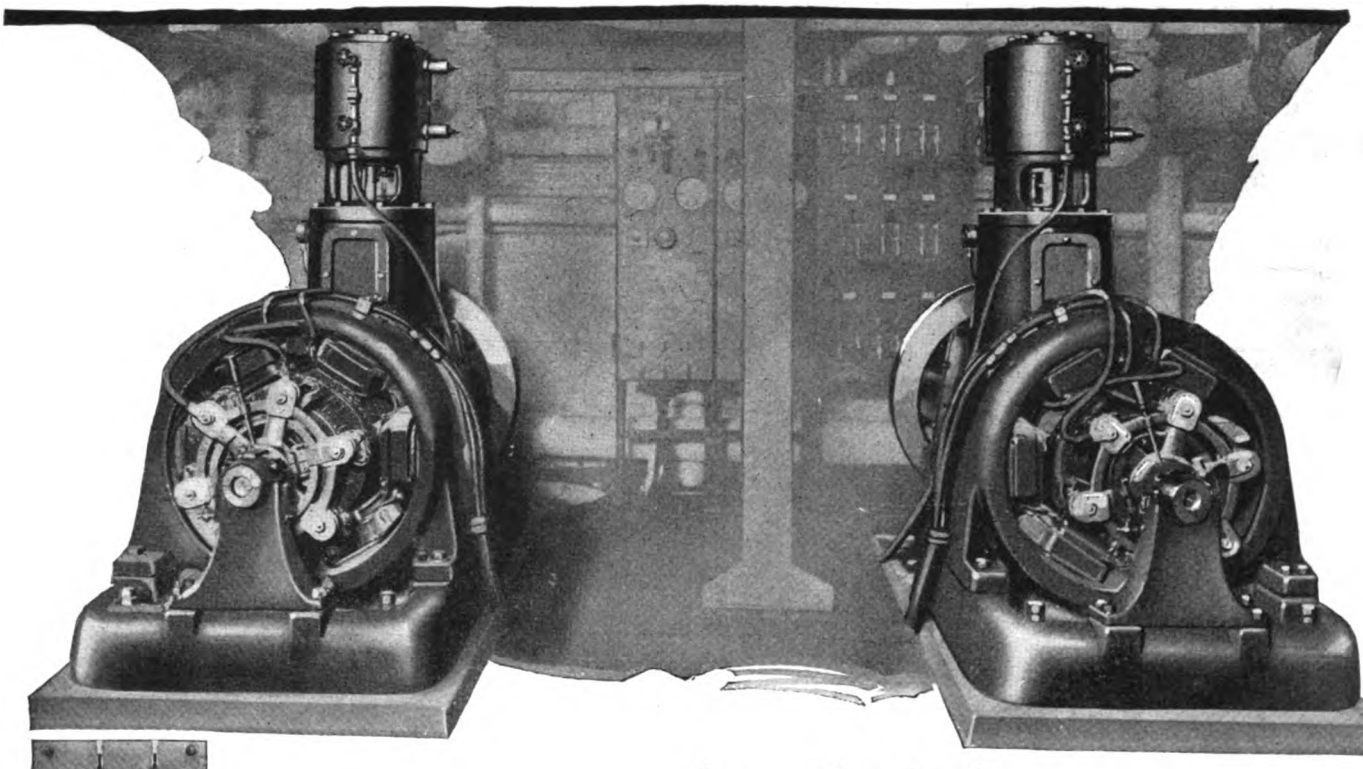
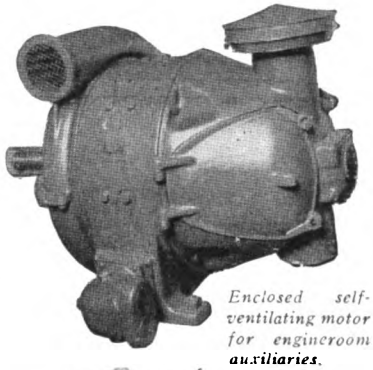
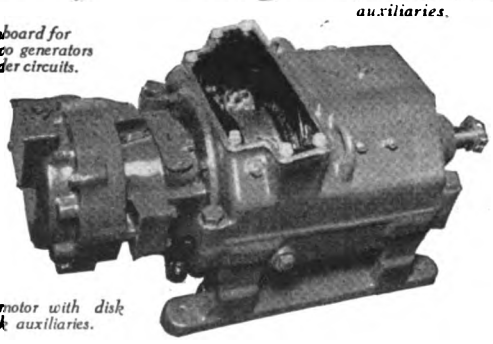
Auxiliary power that is economical, reliable and easy to obtain is as important to a ship as good tools are to a skilled craftsman.



DC switchboard for controlling two generators and 12 feeder circuits.



Enclosed self-ventilating motor for engineroom auxiliaries.



Waterproof motor with disk brake for deck auxiliaries.

A mechanical first-mate

QUICK, always-ready, willing, and fit for a little more than its job—that is the G-E Steam Engine-Driven Generating Set for marine use to light ship and drive auxiliaries.

Its insistent, steady power, its capacity for bearing emergency overloads, its refusal to fail under severe strains, all mean swift loading and unloading when hours in port are costly. Its cleanliness, low maintenance cost and easy control mean better ship operation.

A G-E Steam Engine-Driven Generating Set is not a makeshift combination of "any engine hooked up to some kind of generator" producing makeshift results. The whole unit is built and tested as a unit by a company which has put reliability and ruggedness into all sorts of electric power machinery for a quarter century.

There is a G-E Steam Engine-Driven Generating Set ready to be your mechanical first-mate on board ship.

A request brings Bulletin 42300-A describing sets ranging from 2½ to 75 Kw. capacity.

General Electric Company

General Office Schenectady, N.Y.

Sales Offices in all large cities

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The Yale Way Saves $362.12 in One Week

TIME studies made in the foundry where this photograph was taken showed that the total cost of handling 600 tons of sand in the old way (wheelbarrows) was $545.72.

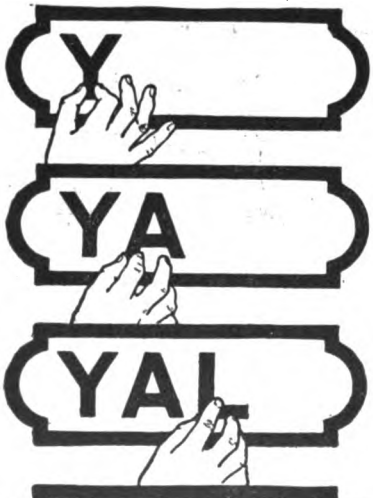
The job involved the handling of moulding sand from a railroad siding to the moulding room; 400 ft. the round trip, 40 feet of which was on a 12% grade. Six days in all were required to complete the work.

With a Yale DF-60 Electric Industrial Truck, equipped with a detachable dump-body of 27 cu. ft. capacity, the cost of handling a second 600 tons of sand was cut to $183.60, including due allowance for interest on the investment—a clear saving of $362.12.

And when this work was done, the detachable dump-body was removed to permit the truck to be used for general hauling purposes around the plant.

Other units of the Yale Hoisting and Conveying Systems include Chain Blocks, Electric Hoists, I-Beam Trolley Systems, Electric Crane Trucks and Tractor and Trailer Trains.

Have your secretary write for other bulletins today.



Yale Made is Yale Marked

The Yale & Towne Mfg. Co.
Stamford, Conn., U. S. A.

TRADE YALE MARK Hoisting and Conveying Systems

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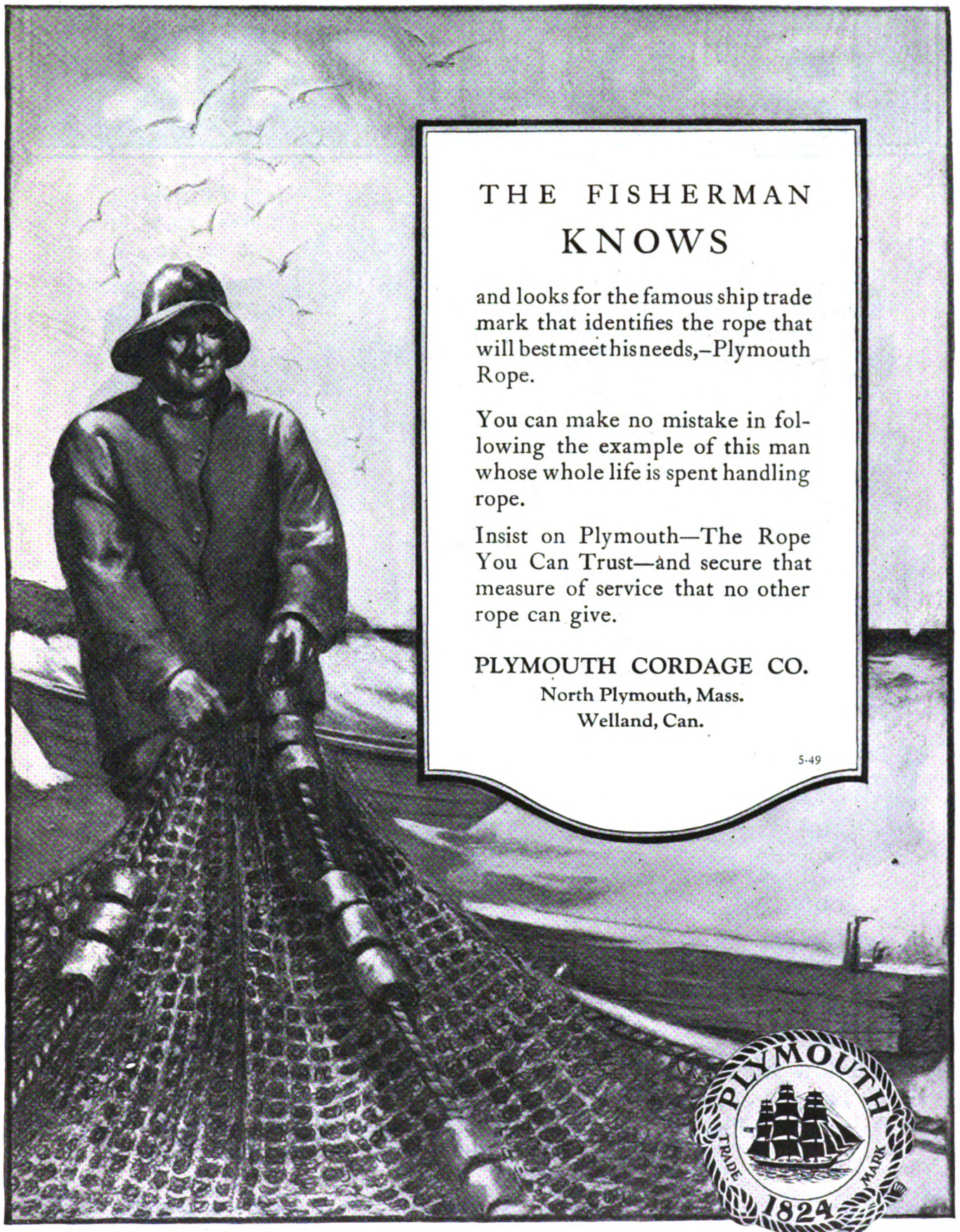

THE FISHERMAN
KNOWS

and looks for the famous ship trade mark that identifies the rope that will best meet his needs,–Plymouth Rope.

You can make no mistake in following the example of this man whose whole life is spent handling rope.

Insist on Plymouth—The Rope You Can Trust—and secure that measure of service that no other rope can give.

PLYMOUTH CORDAGE CO.
North Plymouth, Mass.
Welland, Can.

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PLYMOUTH TRADE MARK 1824

PLYMOUTH ROPE

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POLLAK

FORGINGS

Engine Shafts, Cam Shafts,
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Piston Rods, Connecting Rods,
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Plain Carbon or Alloy Steel

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Every operation is so performed as to insure so far as is humanly possible the lasting service of every Forging turned out from our Works.

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New York City

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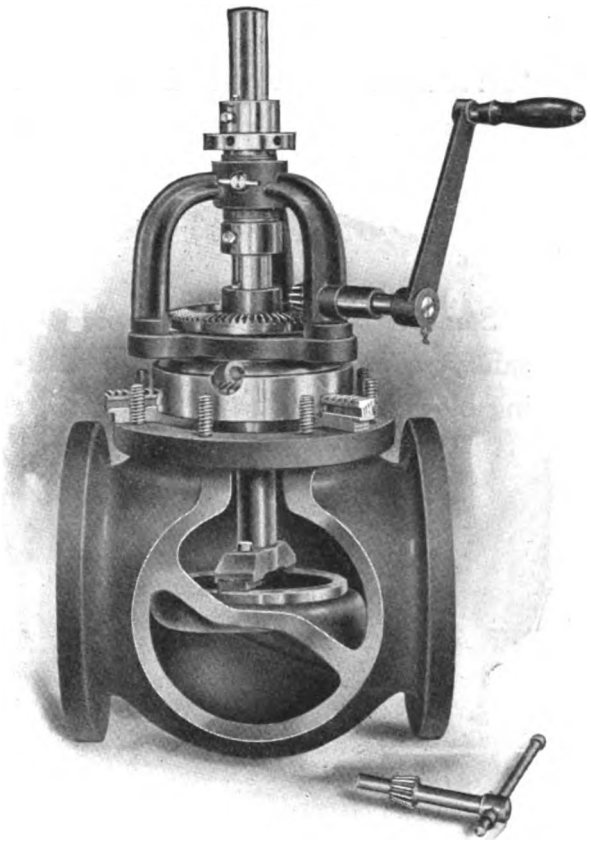
JUST A WORD
About Dexter Valve Reseating Machines

Although there are many things useful on board ship, there is nothing more useful, more essential or better known by Marine Engineers.

Every time you reseat a valve on the line you have saved the expense and bother of removing the valve. This saving in itself will very quickly pay for a Dexter outfit and you have the satisfaction of knowing that your valves are not wasting steam.



There is no other investment as profitable as a Dexter Globe, Gate or Pump Valve Reseating Outfit.

Can you be contented to be without a Dexter equipment any longer?

Send for our new Catalog M-23 or make up your requisition today.

Do it now.

THE LEAVITT MACHINE COMPANY
ORANGE, MASS., U. S. A.

Manufacturers of Dexter Globe, Gate, and Pump Valve Reseating Machines

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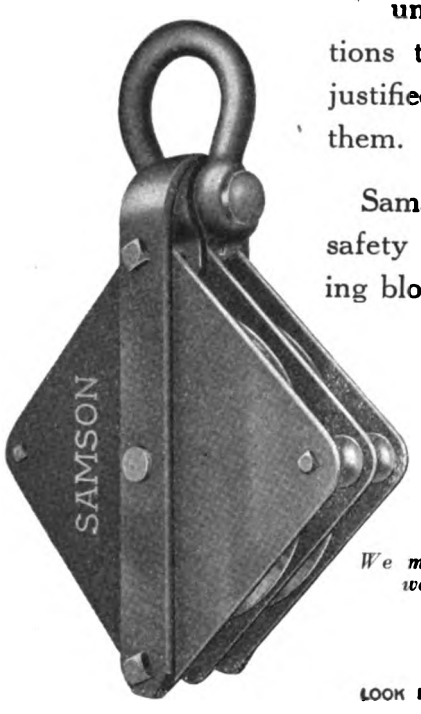
SAMSON

DIAMOND PATTERN WIRE ROPE BLOCKS

QUALITY UNSURPASSED



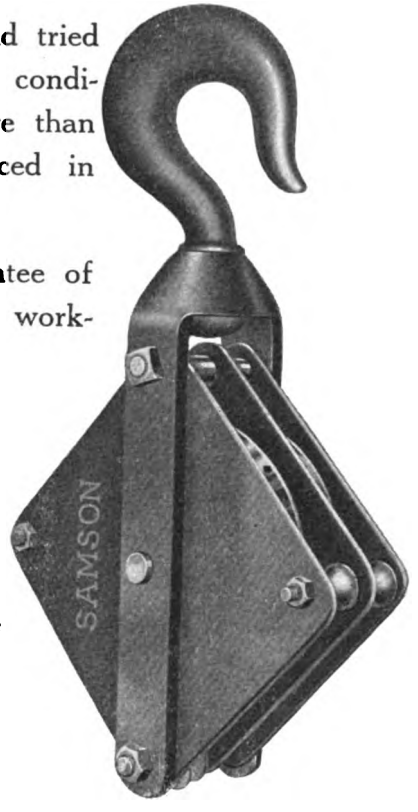
THOROUGHLY tested and tried under the most adverse conditions these blocks have more than justified the confidence placed in them.

Samson brand is a guarantee of safety securing and a smooth working block.

Jappaned or galvanized with all styles of fittings.

New prices were established May 2. Send for them today.

We manufacture a complete line of wood and steel tackle blocks.



LOOK FOR TORRINGTON U.S.A. UNION HARDWARE CONN. THIS BRAND

WHERE OTHER BLOCKS REFUSE THE TASK *SAMSON* WILL PULL YOU THROUGH

UNION HARDWARE COMPANY

TORRINGTON, CONN.

NEW YORK OFFICE - 99 CHAMBERS ST.

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LUKENS

LUKENS

Did You Lose It?

or

Didn't You Ever Have One?

We're speaking about that little card which all boat builders, designers and marine engineers should have.

As one Marine Engineer said,

"Had plates of the width you are now rolling been available in the past, much complex, expensive and troublesome Scotch boiler construction could have been avoided."

If you haven't one of our size cards just let us know and we will be glad to supply you, for we roll the widest plates in the world and flange 15′ 3″ Outside diameter boiler heads in one piece.

Think of all the troublesome, leaky seams you can cut out in construction.

Yes Sir, You'll Need Our Size Card

Lukens Steel Company

Coatesville, Pennsylvania

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BALTIMORE NEW ORLEANS

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SOLE EXPORTER OF OUR COMMERCIAL PRODUCTS CONSTEEL CONSOLIDATED STEEL CORPORATION 25 BROADWAY, NEW YORK, U.S.A.

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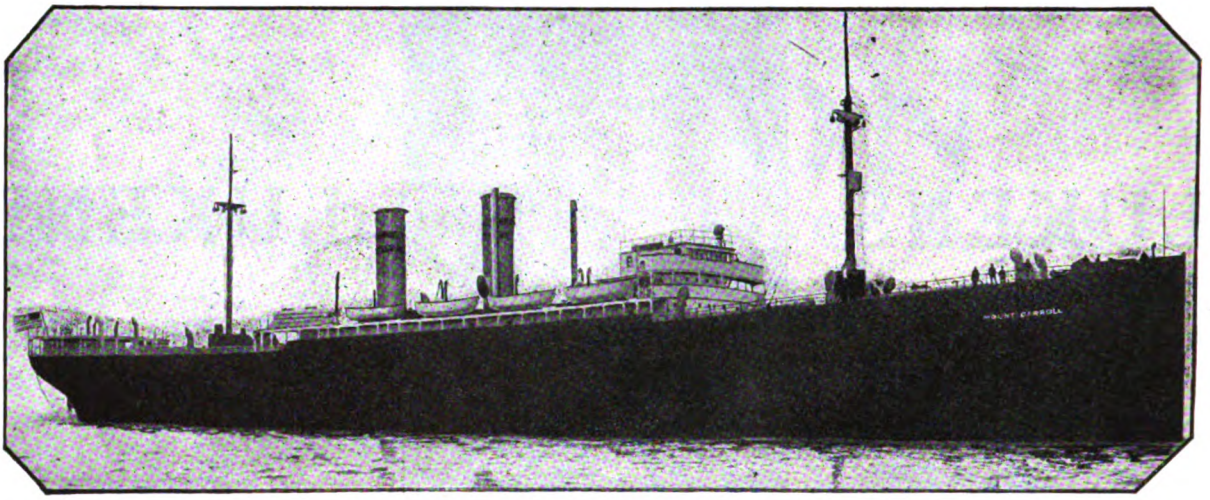
THE SHIPYARD WITH A TRADITION—FOUNDED IN 1859



S.S. Mt. Carroll, Combination Freight and Passenger ship built at the Merchant Yard for the Shawmut S.S. Company, and operated in the New York-Hamburg service by the United American Lines

Ships-Steel

We Build—Fabricate—Construct

A SIXTY-YEAR record of fine performance stands back of our shipbuilding plant. Ships built in the Chester Yard are known throughout the world for craftsmanship and durability.

Old shipbuilders know the part played in American shipbuilding by John Roach, once the head of this yard. John Roach said to his men, "Do your work so well that it will never merit adverse criticism." This is still our tradition.

To utilize further the extensive facilities of our splendid plant, we are also operating a department for general engineering and steel construction.

We are ready to place at the disposal of those contemplating work in these lines, the services of our experienced and specialized technical staff.

Our Quotations will interest you

MERCHANT
SHIPBUILDING CORPORATION

Chester, Pa., or 39 Broadway, New York

Ask us to bid on the following:

Ship Construction

Designs ready for Tankers of 10,000 D. W. T. All kinds of ships up to 15,000 D. W. T. Motorships 11,500 D. W. T. with Diesel Engines. Conversion of Steamships to Diesel Motorships with Direct or Electric Drive. Repairs and Reconditioning of Ships.

General Steel Construction

Structural Building and Bridge Material. Structural Steel for Cranes and Tunnel Sections. Water Towers—Hoppers. Acetylene Work — Plate Shop Work — Air Ducts. Fire Escapes — Ladders—Gratings. Steel Smokestacks. Riveted Steel Piping—Pipe Expansion Bends. Gas and Oil Tanks. Equipment for Cargo Handling—Grain Elevators—Ship and Railroad Terminal Appliances.

Coppersmith Work

Carpenter Work

Cooling Towers

Joiner Work

All kinds of Joiner and Cabinet Work.

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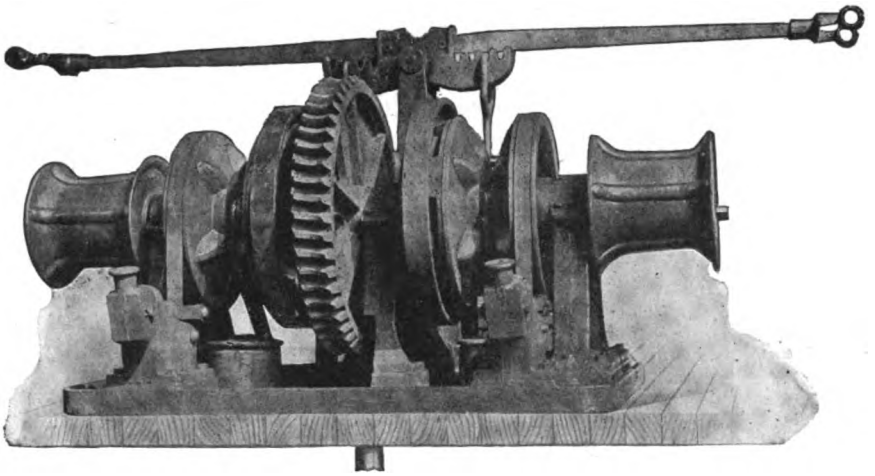
When You Choose That Windlass



CHOOSE A-E-CO

BECAUSE

Among the Many Types and Sizes Built by the American Engineering Company, There Is One That Will Suit

Your Space Limitations
Your Ship Construction
Your Personal Preferences

and

BECAUSE

Its Design and Quality Will Guarantee

Satisfaction
Economy
Strength
Dependability
Service

We illustrate the worm-gear type with drive (steam or electric) in protected space below deck.

We also Build

Steering Gear
Telemotors
Winches
Capstans
Gypsies
Anchors
Chandlery
Towing Machines

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THE AMERICAN ENGINEERING COMPANY
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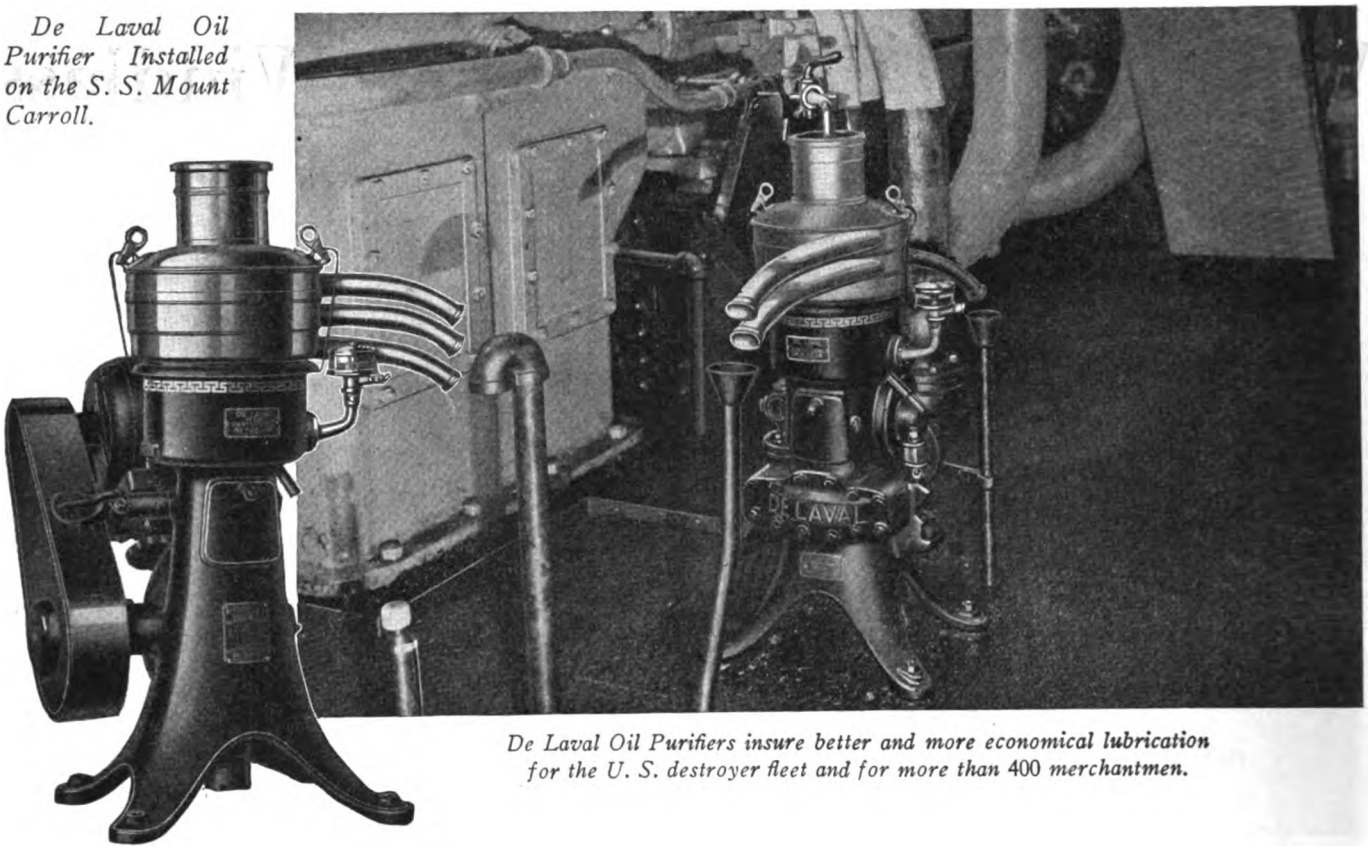

De Laval Oil Purifier Installed on the S. S. Mount Carroll.

De Laval Oil Purifiers insure better and more economical lubrication for the U. S. destroyer fleet and for more than 400 merchantmen.

Cleaner lubricating oil helps to reduce operating expenses of the Mount Carroll

The De Laval Oil Purifier on board the S. S. Mount Carroll removes from the used lubricating oil the dirt, water and particles of metal which are ruinous to bearings. It makes it possible to use the same oil over and over and so greatly reduces lubricating costs.

Oil purified by the De Laval is kept free from emulsion and for lubricating purposes is equal to new oil. A constant, abundant supply of such oil insures a greater length of service from machinery and a minimum of bearing trouble.

De Laval Bulletins No. 102-E and No. 103-E tell how you can save oil. Write for them.

The De Laval Separator Company

Largest Manufacturers of Centrifugal Machinery in the World

New York, 165 Broadway **Chicago, 29 East Madison St.**

Manufacturers' Selling Agents

De Laval Steam Turbine Company
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De Laval Pacific Company
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Chadburn's (Ship) Telegraph Company, Ltd., Cyprus Road, Bootle, Liverpool
Turbine Equipment Company, Toronto, Ontario, Canada

Sooner or later you will use a De Laval

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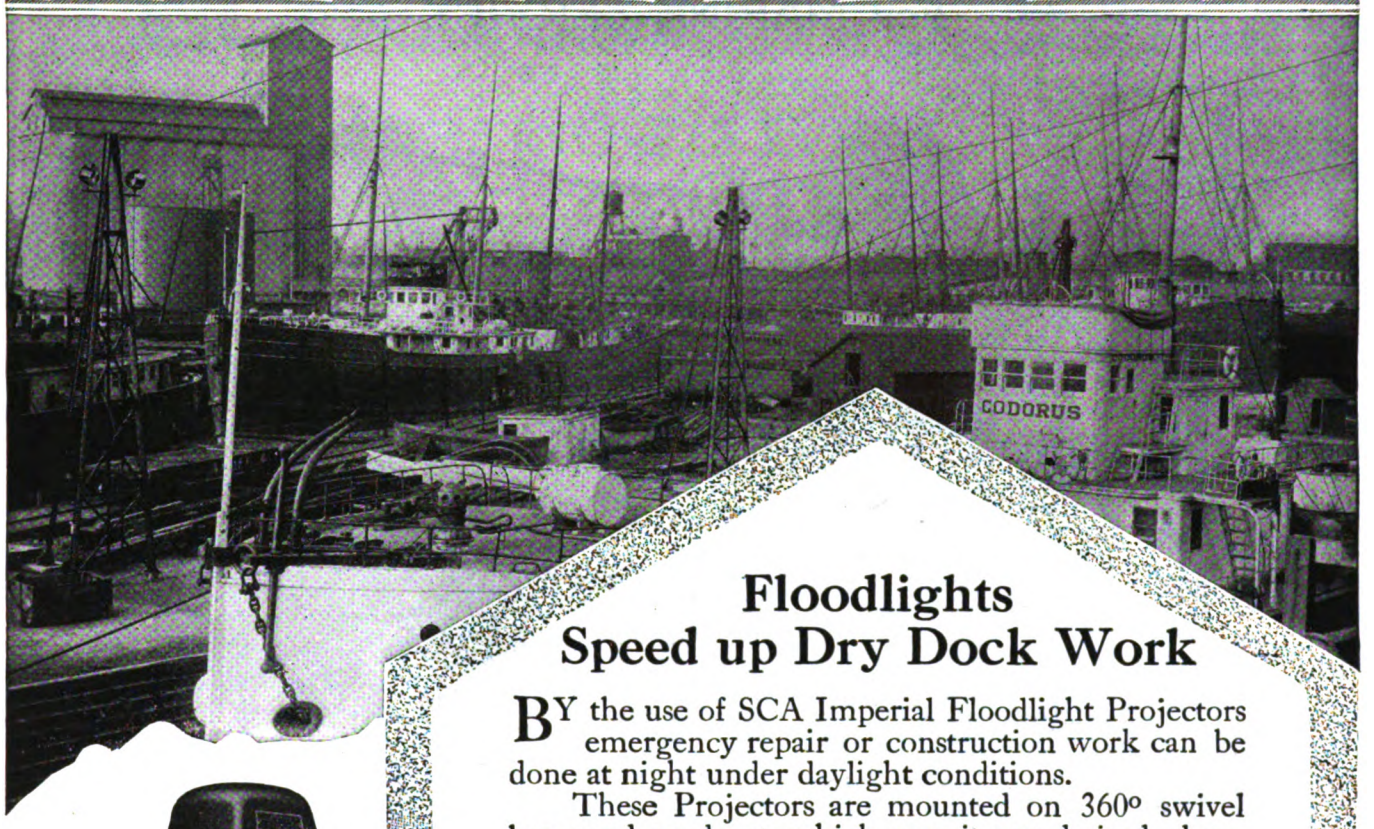
FLOODLIGHTS



Floodlights Speed up Dry Dock Work

BY the use of SCA Imperial Floodlight Projectors emergency repair or construction work can be done at night under daylight conditions.

These Projectors are mounted on 360° swivel bases and quadrants which permit any desired elevation or depression.

Ventilated casings are of highest rust resisting quality iron or steel, alloy-coated, japanned and baked. Baffles prevent direct air from striking lamp.

These SCA Imperial Floodlight Projectors can be focused without tools to give narrow or wide beams as desired. They are equipped with plain heat resisting, spread or diffusing lenses, and with any one of several special forms of mounting.

Send for Imperial Floodlight Bulletin No. 304 and No. 304-A.

SCA PROJECTORS have true parabolic metal or glass reflectors.

CROUSE-HINDS COMPANY
SYRACUSE, N. Y., U. S. A.
BOSTON NEW YORK CHICAGO
Condulets Panelboards
Knife Switches Floodlights
Guy Anchors
1639

CROUSE-HINDS

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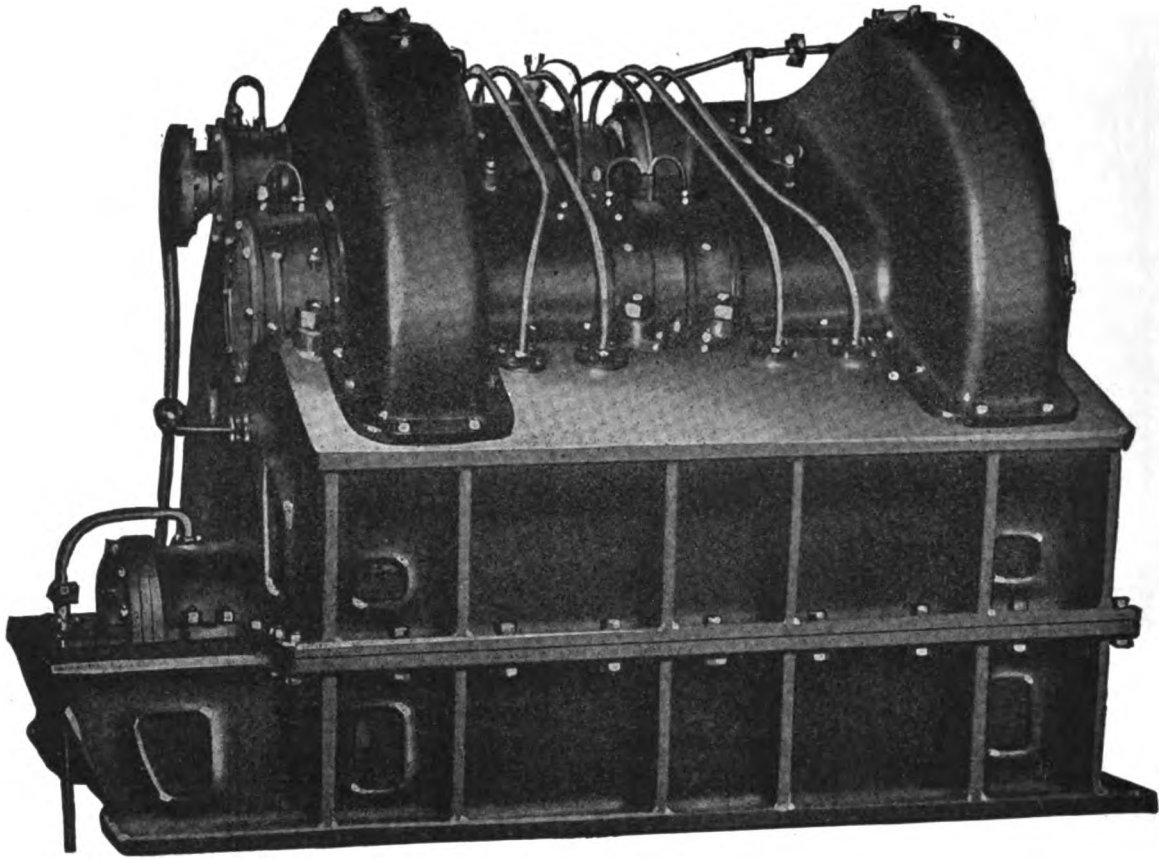
FALK Herringbone GEARS

For MARINE SERVICE



Side View of Double Reduction Marine Gear for Single Turbine Drive, 1500 H. P., 3600 to 90 R. P. M., including Kingsbury Thrust Bearing

These gear units are built in the Largest and most Completely Equipped Plant in this country which is devoted exclusively to the building of high class reduction gears—for all purposes

Falk Corporation, Milwaukee, Wis., U. S. A.

W. O. BEYER
1007 Park Bldg., Pittsburgh, Pa.

M. P. FILLINGHAM
50 Church St., New York City

F. W. GRIMWOOD
Rialto Bldg., San Francisco, Cal.

ENGINEERING EQUIPMENT CO., Ltd.
263 St. James Street, Montreal, Quebec, Can.

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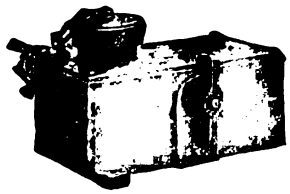
MARINE ELECTRICAL EQUIPMENTS

TELEGRAPHS *for* SHIPS YACHTS MOTOR BOATS

Electrical 1550

LIGHTING FIXTURES
AND
WIRING APPLIANCES

2558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Mechanical 771-S

ANNUNCIATORS
BOILER FIRE TIMING
CALL BELLS, W. T.

DRY-DOCK CONTROL SYSTEMS, ENGINE SPEED AND DIRECTION INDICATORS, FIRE ALARM SYSTEMS

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Boiler Fire Timing Transmitter 3019

ORIGINATORS AND DESIGNERS OF
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THE PERFECT ANTICIPATING AND EMERGENCY SYSTEM FOR CONTROLLING MARINE ENGINES UNDER ALL CONDITIONS.

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Loud Speaking Telephone 1927

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CORY SAFETY SERVICE

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In Constant Service Where Ships are Built

A tough rubber cover built to withstand abrasion and offering the greatest resistance to wear—

An oil-proof inner tube which cannot separate from the braid—

An extreme strength resulting in unusual length of service, yet so flexible that it will easily bend around any obstruction without kinking—

All characteristic of 48-10 the most dependable air hose that it is possible to produce.

United States Rubber Company

1790 Broadway New York

Branches in Every Industrial Center

UNITED STATES RUBBER COMPANY AND ASSOCIATED COMPANIES — US — RUBBER SYSTEM

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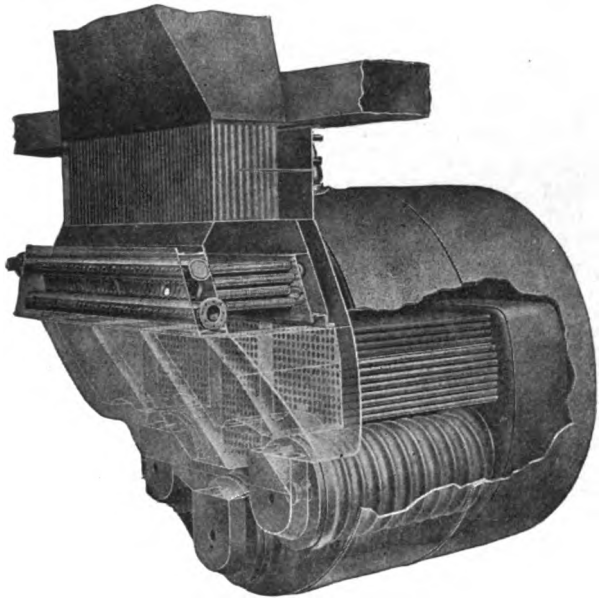
How Foster Superheaters Affect Main Engine Economy



Foster Superheater Installed in Uptake of Scotch Boiler

Foster Superheaters have by now been thoroughly tested out in connection with both triple expansion engines and turbines aboard ship.

For example, over 100 ocean-going and coast-wise merchant ships equipped with Scotch marine boilers and triple expansion engines are fitted with Foster waste-heat type superheaters in uptakes. Many of these installations have been subjected to exhaustive tests with and without superheaters. As a result, the following points in connection with the use of moderate superheat in reciprocating engines have been definitely established:

No change in design of valves, clearances or port areas is required for satisfactory operation.

Internal lubrication is unnecessary.

Repairs to engines are no more frequent, and repairs to superheaters are literally negligible.

The average fuel economy is improved from 5 to 10 per cent—enough to repay the cost of the superheater in 2 to 3 years.

The advantages of superheat in turbine operation are universally accepted. Both land and marine experience has definitely proven that superheat is *required* to produce the proper turbine efficiency and to eliminate blade troubles and repairs due to moisture entering the turbine.

The benefits of superheat in marine service have been largely established by Foster Superheaters. Over 20 years of experience and the satisfactory results of 10,000 installations on land and sea entitle us to speak authoritatively. Write for complete information.

43

POWER SPECIALTY COMPANY

111 BROADWAY, NEW YORK

Branches: Boston, 50 Congress Street; Philadelphia, Land Title Building; Pittsburgh, Oliver Building; Chicago, Harris Trust Building; San Francisco, Balboa Building.

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Works: Dansville, N. Y., and Egham, Eng.

FOSTER SUPERHEATERS

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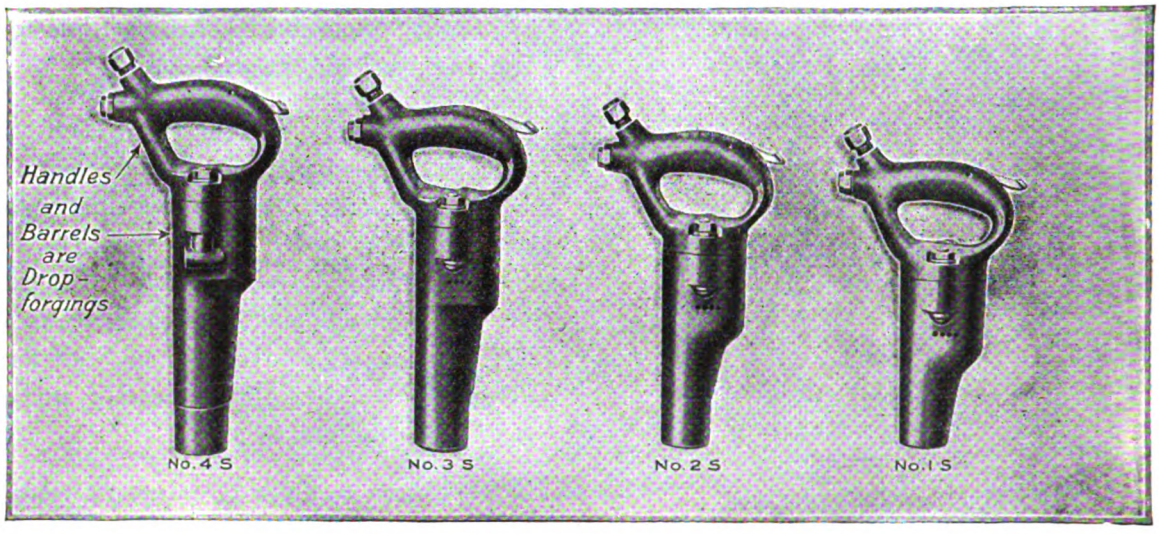
LET THESE HUSKY TOOLS WORK FOR YOU



"Little David" Chippers Cut Metal and Costs

They have the extra power needed to cut more metal and the special features which avoid breakdowns and interruptions to the work.

They cost little to maintain. For instance in one large plant "Little David" Chippers averaging two years old and in daily use, cost only 31 cents per month for upkeep. This figure included labor costs and was based on tools actually in everyday use.

Let us send you Catalog 8000 describing these tools or ask our representative to call.

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Ingersoll-Rand

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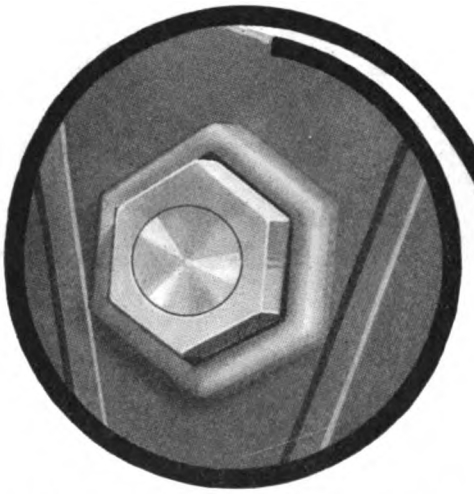
MARINE DECKING & SUPPLY CO. MADESCO PRODUCTS PHILADELPHIA, PA.



This shows our patent Nut Lock in detail

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COTTER PINS
Eliminated

Absence of cotter pins means absence of trouble and delay.

Sailors seldom replace cotter pins.

The patent nut lock feature is found only on blocks made by

Marine Decking & Supply Co.

Main Office
116 N. Delaware Ave., Philadelphia, Pa.

Factory: **Easton, Pa.**

New York Distributors
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Madesco
Quaker
The
Cargo Hoister
with the
PATENT
Nut Lock

OTHER FEATURES—

The over-sized Pin
The flanged bushing
The drop forged straps,
head shackles.

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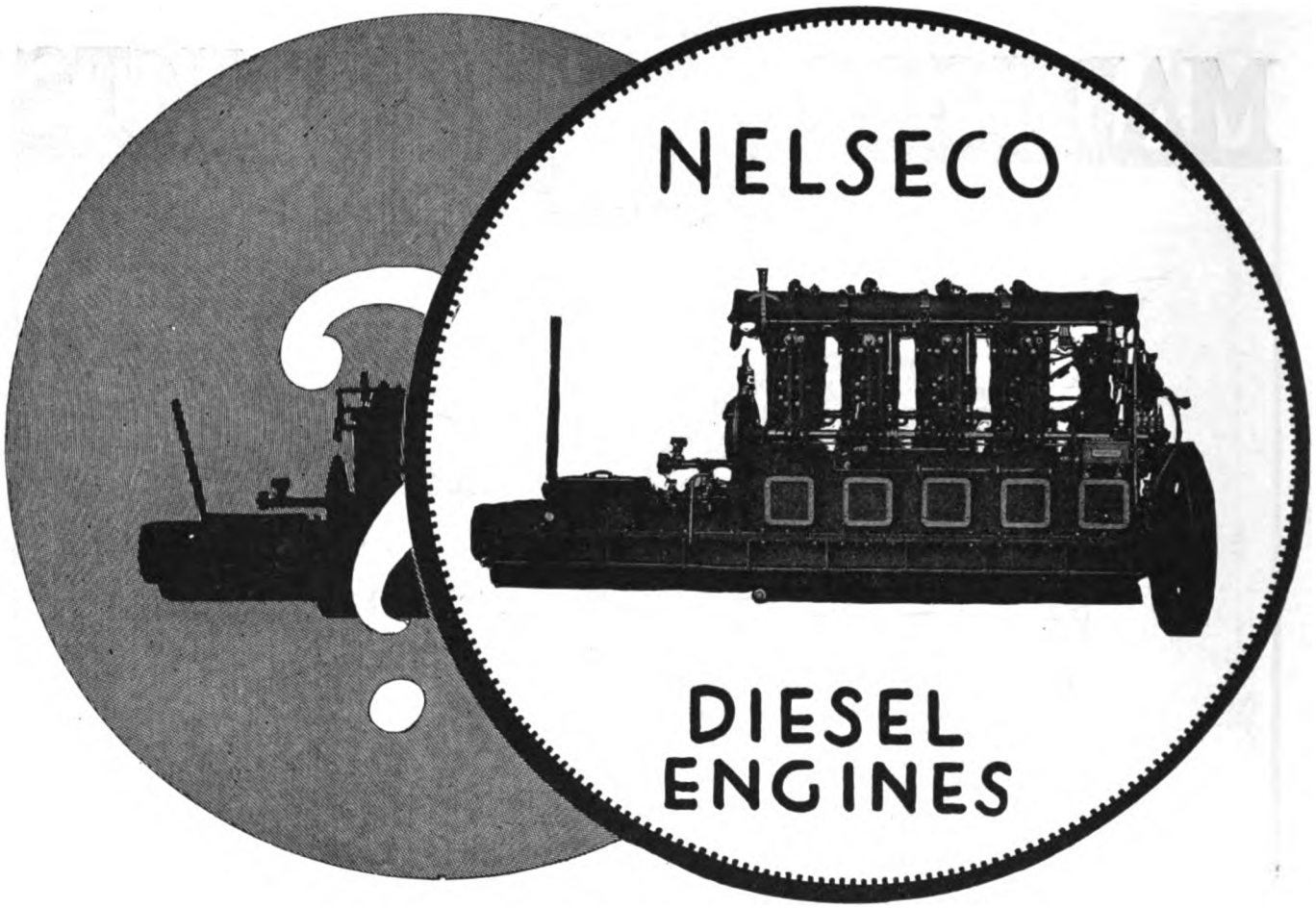

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THE SHADOW OF DOUBT
NEVER ENTERS THE MIND OF USERS
OF
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MARINE DIESEL ENGINES

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MARINE DIESEL ENGINES
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Ships thus equipped are propelled efficiently and dependably with as low fuel consumption as is possible to secure through any like operation. Over 150,000 H. P. now in service in American and Foreign Vessels or on order.

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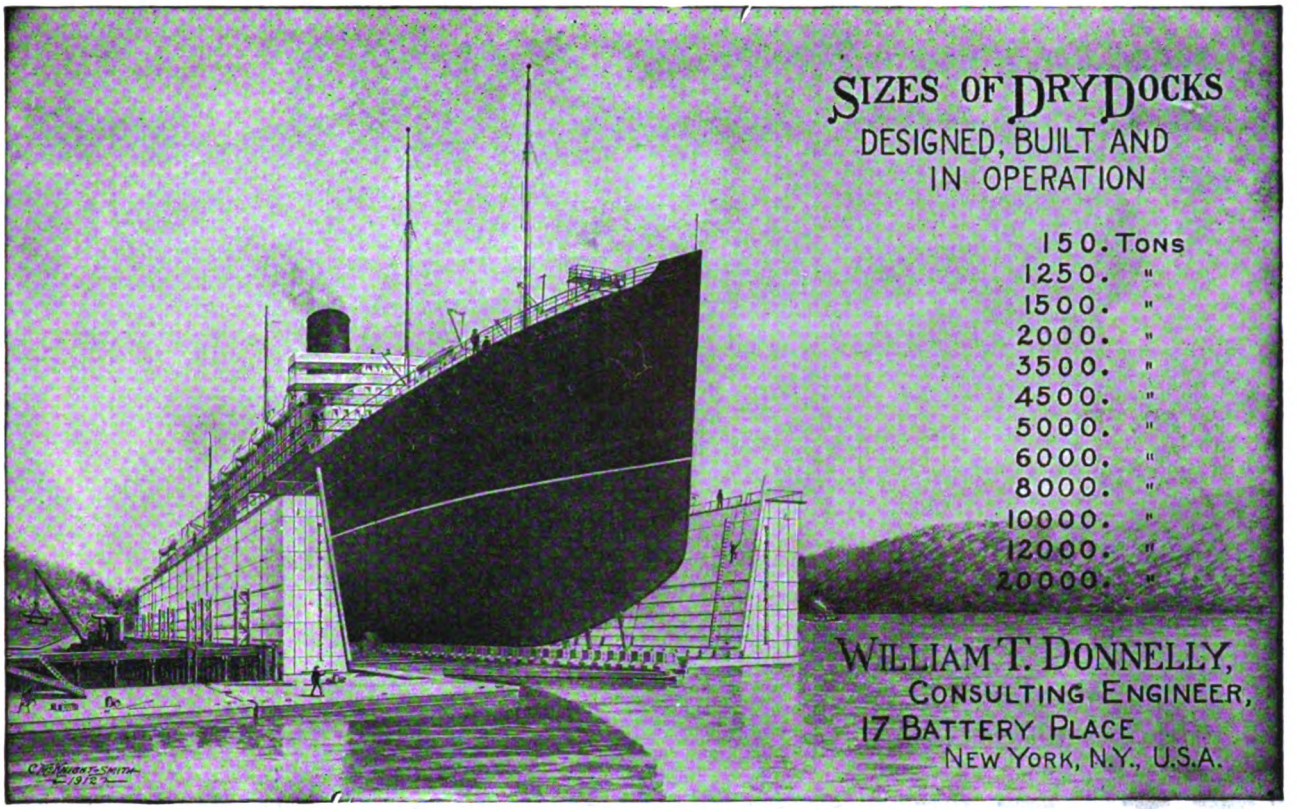

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Designer of Floating Dry Docks, Steel, Wood, or Steel and Wood Construction. Pontoon Types, Sectional Type, Box Docks.

Plans on hand for sizes from 1,000 tons to 20,000 tons lifting capacity.

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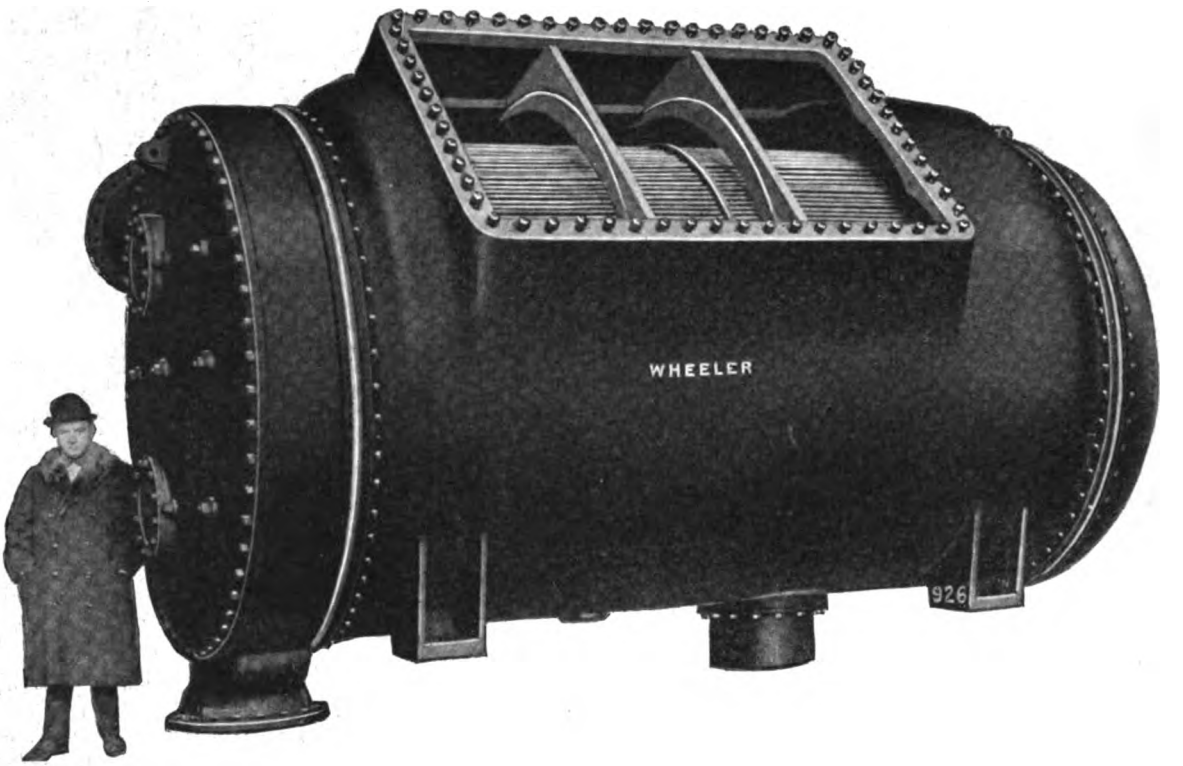

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MARINE CONDENSING EQUIPMENT

WHEELER Admiralty condensers are designed to produce the highest rates of heat transmission and the maximum condensate temperature. The entering steam is distributed circumferentially around the top of the tube bank, thus insuring uniform penetration of all of the tubes.

Wheeler Admiralty condensers are built in all sizes for main unit and auxiliary service. They are furnished mounted directly over combined auxiliary pumps or with independent air, circulating and condensate pumps, as for high vacuums.

We have developed all types of vacuum pumps in connection with Wheeler Condensers. The Wheleer-Edwards air pumps are standard equipment on ships equipped with reciprocating engines, because of their proven reliability and low operating cost. For high vacuum turbine work, where space is limited and the highest economy of steam is desired, the new Wheeler two-stage steam jet air pump has no equal.

Each Wheeler Condensing installation is especially designed on scientific principles to meet specific conditions and requirements.

Bulletin on request.

Wheeler Condenser & Engineering Co.

CARTERET, NEW JERSEY

Manufacturers of condensers, circulating pumps, vacuum pumps, evaporating systems, brass and copper tubes and pipe.

See our exhibit at the Seventh National Exposition of Chemical Industries, New York City, during the week beginning September 12th.

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LUNKENHEIMER
"Victor" Gate Valves

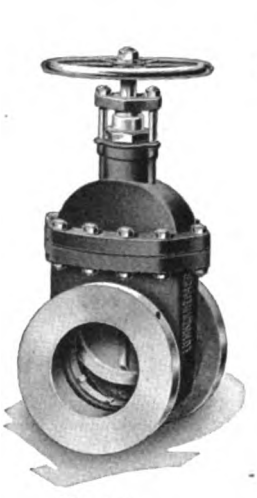

Fig. 941.
Iron Body Bronze Mounted.
For pressures up to 125 lbs.

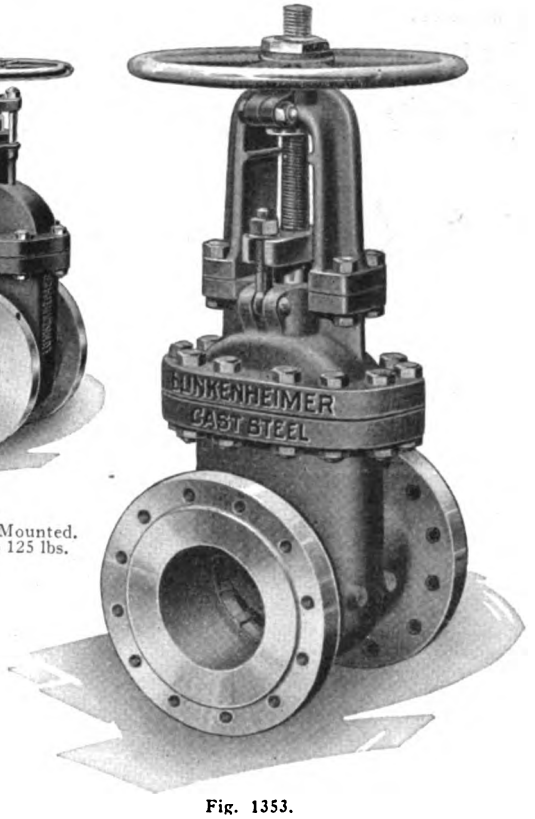

Fig. 1353.
Cast Steel. For pressures up to 350 lbs.

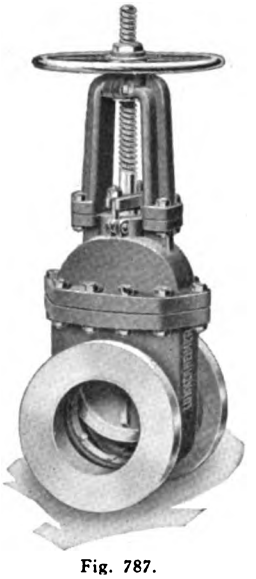

Fig. 787.
Bronze. For pressures up to 250 lbs.

Dependable performance is the service record of LUNKENHEIMER "VICTOR" GATE VALVES. The Lunkenheimer solid wedge disc, double-faced and guided in its travel, is the most practical design of Gate Valve construction. It eliminates "dragging" across the seatring faces and the consequent wear prevalent in valves employing loose parts.

Highest quality materials, coupled with the Lunkenheimer method of manufacture; bearings bushed to minimize wear; all parts, including the seatrings, renewable, and the indestructible gasket between the bonnet and body flanges, all tend to enhance their value and insure longevity.

Lunkenheimer "VICTOR" Gate Valves are made in Bronze for pressures up to 125 and 250 pounds; in Iron Body Bronze Mounted for pressures up to 100, 125, 175 and 250 pounds, and in Cast Steel for pressures up to 350 pounds and temperature to 800° F. A complete line covering every service requirement.

Lunkenheimer Distributors situated in practically every port are prepared to furnish Lunkenheimer Products from stock. Insist on having the genuine.

THE LUNKENHEIMER CO.
"QUALITY"
LARGEST MANUFACTURERS OF
HIGH GRADE ENGINEERING SPECIALTIES
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Feed Water—An Important Item of Operating Cost

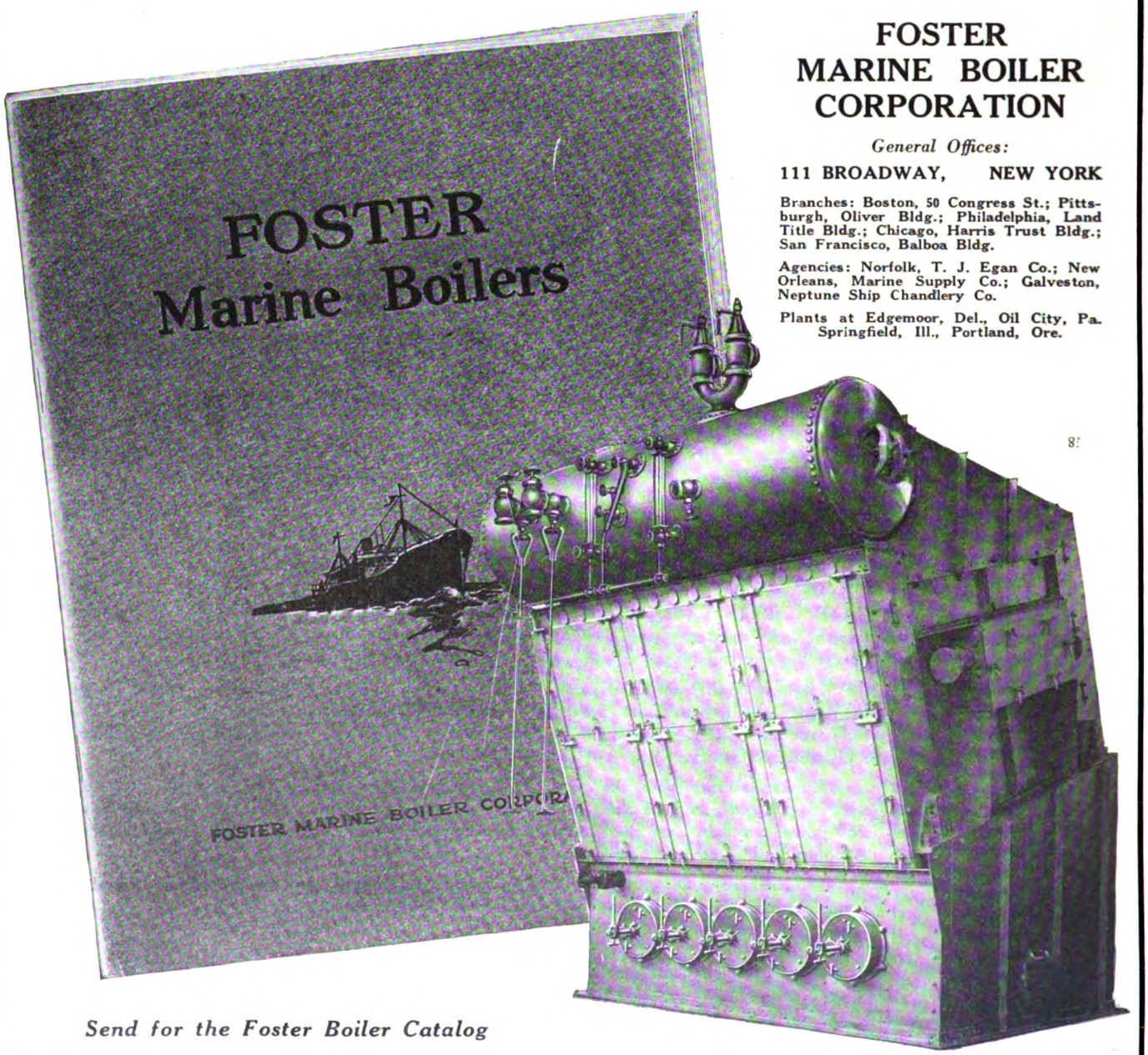
Marine boilers should not have feed water troubles, such as scale, priming or repairs due to salt water. With properly designed and constructed surface condensers and evaporators, marine boiler feed water will be entirely free from scale-forming salts.

With either the Scotch or Water-tube type of boilers, it is essential that the condenser be carefully watched and the condensed feed supply be tested with a silver nitrate solution every watch to make sure that any leakage from the condenser is quickly detected.

If the condenser is found leaking it will cause less trouble to stop and repair it than to continue heavily salting the boilers. If the boilers are unavoidably salted it is best to reduce the speed of the main engine until the boilers can be freshened again, as this reduced speed will permit the boilers to operate without priming or causing troubles with lower row tubes.

Foster Marine Boilers have large water storage and ample steam disengaging surface. When fed with reasonably good feed water they will not prime. The tubes are straight throughout their entire length and can be quickly and easily cleaned with a turbine tube cleaner in port. They do not require a large scaling gang to clean them internally as is usual with all Scotch marine boilers.

There is a very complete chapter on feed water in the Foster Boiler Catalogue. Why not read it?



FOSTER MARINE BOILER CORPORATION

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Agencies: Norfolk, T. J. Egan Co.; New Orleans, Marine Supply Co.; Galveston, Neptune Ship Chandlery Co.

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Send for the Foster Boiler Catalog

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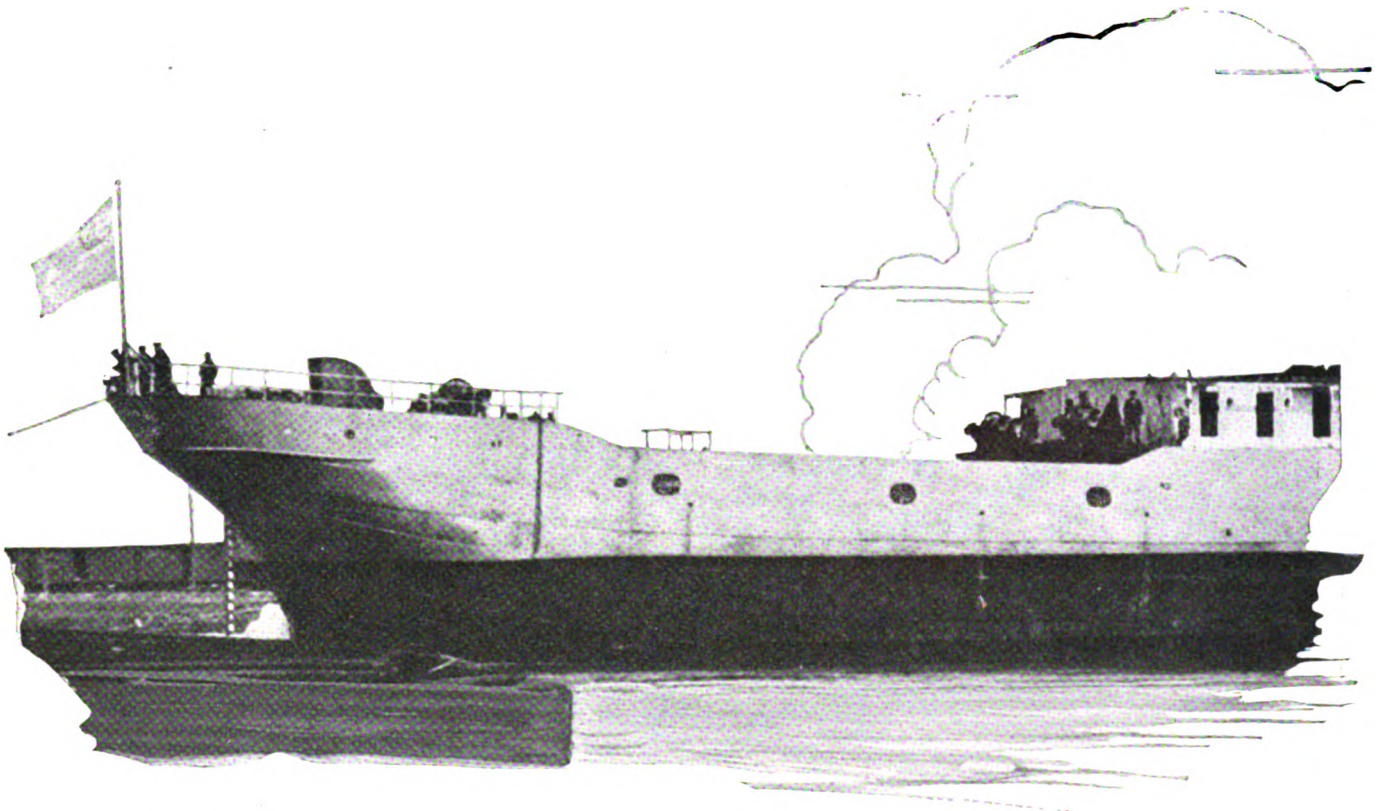

One of many U. S. Shipping Board steel ships on which Dutch Boy Red-Lead was used for first hull coat.

Salt water destroys steel—

But red-lead saves it. That's why the men who have the responsibility of operating ships insist on red-lead for metal surfaces.

Dutch Boy Red-Lead is the best known and most economical protection for steel and iron—on ships, piers, buildings, bridges, tanks, and so forth. It covers the surface with a tough, elastic, lasting, moisture-proof coating. It is easy to put on, and it stays put, making an excellent foundation for finishing coats.

In the Navy, the first coat on all steel-work is red-lead; red-lead is used for retouching wherever rust appears; all because red-lead gives the best protection against corrosion.

Dutch Boy Red-Lead comes in convenient linseed-oil paste. It is pure, and does not harden in the pail—no red-lead wasted, no time lost.

Specify Dutch Boy Red-Lead for all metal surfaces. Can be tinted to your requirements, in black, browns and greens, for finishing coats.

Write for Painting Helps No. 6.

NATIONAL LEAD COMPANY

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JOHN T. LEWIS & BROS. CO., Philadelphia NATIONAL LEAD & OIL CO., Pittsburgh

Dutch Boy Red-Lead

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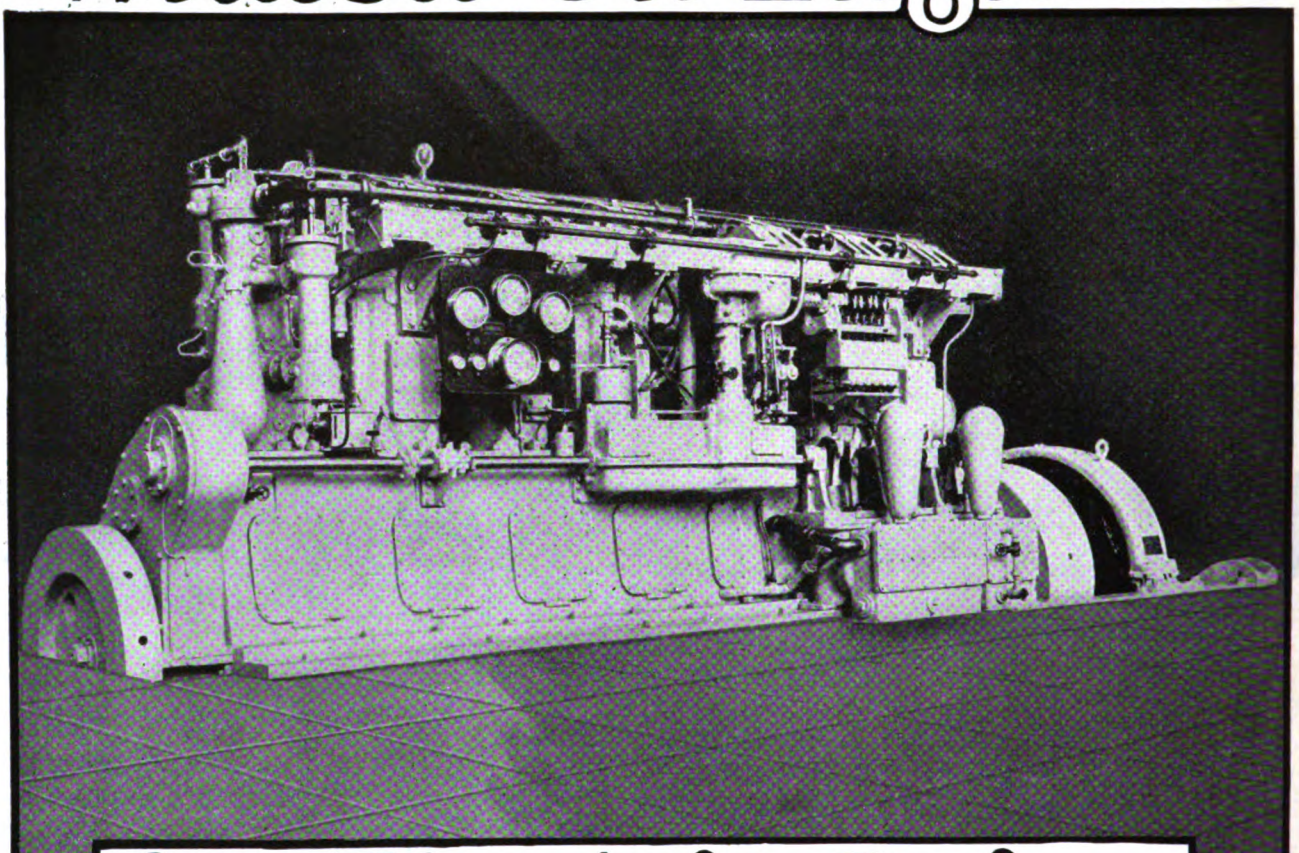
Winton Oil Engines



for Electric Drive

AN increasingly large number of Winton Diesel-Electric Drive Installations are being made, because these outfits are proving out in service to be splendidly efficient and extremely economical in operation.

A series of two or more Winton Oil Engines, each connected to a Westinghouse Generator, generating power and supplying it to a driving motor located in the stern, makes an ideal installation for many different types of ships. The power plant can be placed advantageously, it occupies less room than any other type of propulsion unit and requires a minimum of attention and labor. Its fuel is low in cost, easily stored and quickly taken aboard.

Write to-day for full details of Winton Diesel-Electric Drive Units and for the new Winton Catalog

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Winton

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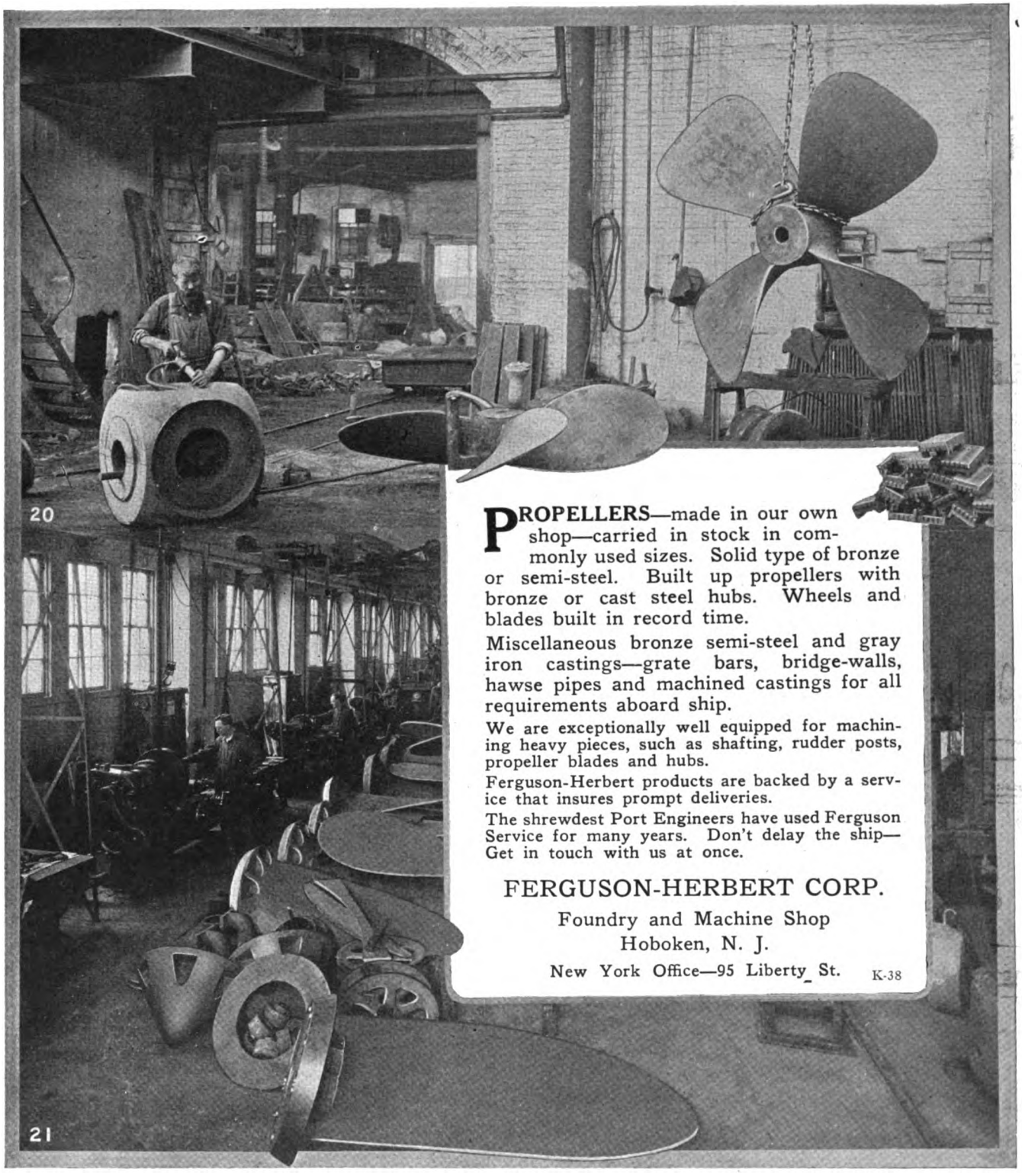
Ferguson-Herbert Corp'n



PROPELLERS—made in our own shop—carried in stock in commonly used sizes. Solid type of bronze or semi-steel. Built up propellers with bronze or cast steel hubs. Wheels and blades built in record time.

Miscellaneous bronze semi-steel and gray iron castings—grate bars, bridge-walls, hawse pipes and machined castings for all requirements aboard ship.

We are exceptionally well equipped for machining heavy pieces, such as shafting, rudder posts, propeller blades and hubs.

Ferguson-Herbert products are backed by a service that insures prompt deliveries.

The shrewdest Port Engineers have used Ferguson Service for many years. Don't delay the ship—Get in touch with us at once.

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Foundry Service

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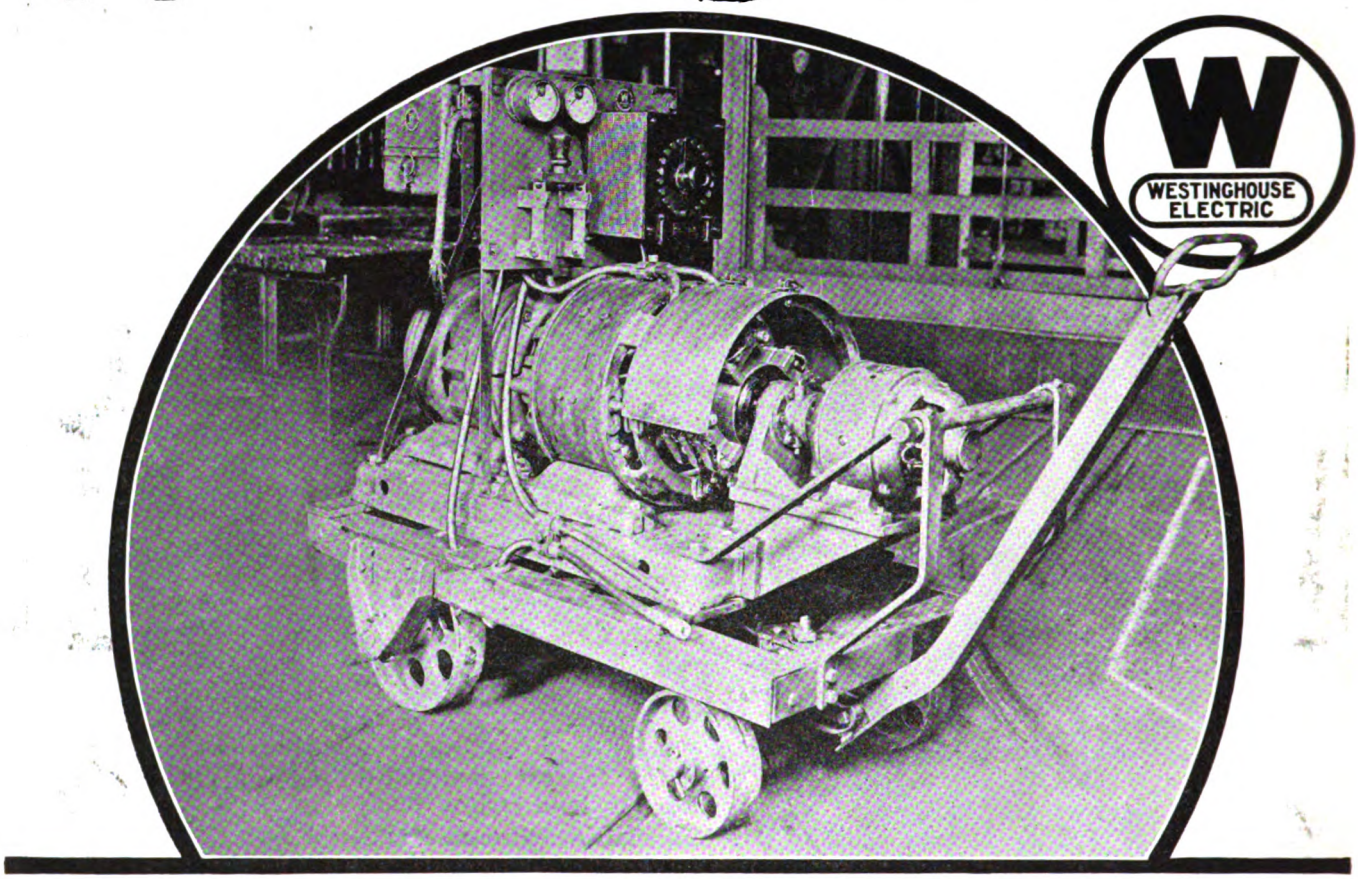
Westinghouse



Better Fusion–Deeper Penetration and more welds per day–

Ten points of the Westinghouse welding equipment that assure economy of operation, good penetration and the proper fusion:

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2. Reactor of low inductance.
3. Proper penetration of deposited metal.
4. Small current steps less than 10 amperes.
5. Twenty-one current steps obtained by adjusting only one device; namely, field rheostat. No change in rheostat setting required while changing from downward or vertical welding to overhead welding.
6. Electrode does not have a tendency to freeze to work.
7. A-C. motor provided with outside terminals for connecting for 220 or 440 volts.
8. Control panel mounted over set, making it compact and requiring minimum floor space.
9. Ammeter and voltmeter supplied on panel. Operator can readily check current and polarity.
10. Covered generator commutator and radial self aligning ball bearings for set and exciter.

Bulletin 7149 is a valuable reference book on arc welding applications and the advantages of the Westinghouse arc welding equipment. Write for a copy.

Westinghouse Electric & Manufacturing Co.

East Pittsburgh, Pa. Offices in all Principal American Cities

Arc Welders

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Better Than The Law Demands

A ship wireless equipment may meet the requirements of the law, and yet it may be ten years behind the radio times.

The set which is installed on a ship by the Radio Corporation of America always embodies the highest engineering skill. It is far more efficient than the law demands—far more trustworthy. It is the result of the systematic development of wireless by the Radio Corporation of America over a period of twenty years.

Thousands of vessels are now equipped with the efficient apparatus of the Radio Corporation of America—apparatus which is better than the law demands.

The sets of the Radio Corporation of America are the most efficient that scientific skill can produce. For behind the Radio Corporation of America stand the splendidly equipped Research Laboratories of the General Electric Company, The American Telephone & Telegraph Company and The Western Electric Company, where, year in and year out, eminent physicists conduct investigations that result in new radio advances. No other company enjoys the benefit of this scientific research in the field of radio communication.

Radio Corporation of America

WORLD WIDE WIRELESS

Edward J. Nally, President

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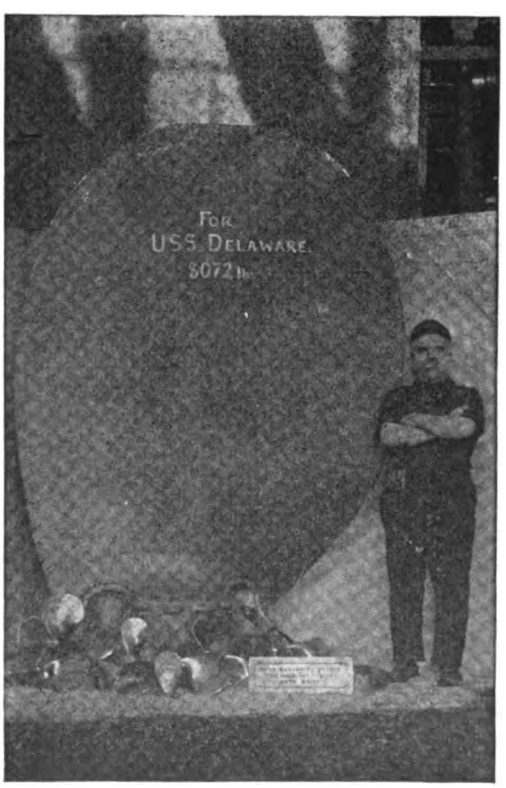

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STANDARD FOR TWENTY YEARS FOR PROPELLERS

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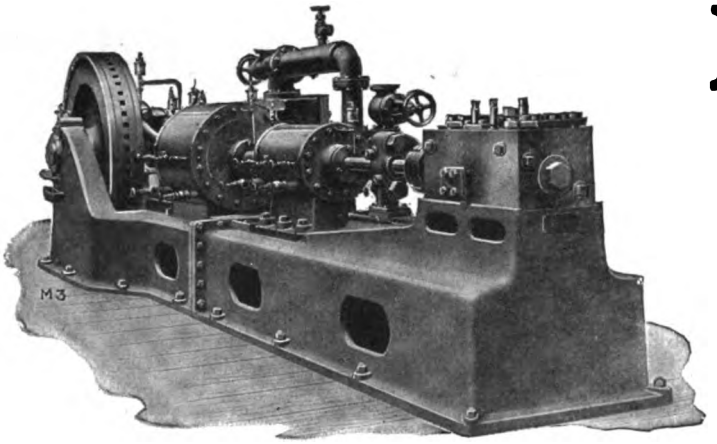

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Mechanical Refrigeration

Heavily built and reliable machinery is essential in the successful operation of the modern refrigerating plant. The Quality, Efficiency and Durability of **FRICK** Refrigerating Machinery are never questioned.

stands for better sanitary conditions, even temperatures, improvement in the quality of the goods stored and a reduction in the amount of goods lost.

CO_2 Compression and **Ammonia Compression** Refrigerating units in any size to meet requirements.

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Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practice economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

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Charcoal Iron Boiler Tubes

Much Depends on Boiler Tubes

What does boiler tube failure mean?

Pulling out corroded, pitted or failed tubes? Higher repair costs?

More than that. It means tying up a boiler, perhaps the ship, while costly overhead runs on and revenue-bringing cargo waits, or is lost.

There are years of service, and freedom from corrosion and pitting, in Parkesburg Charcoal Iron Boiler Tubes. Specify them.

PARKESBURG IRON COMPANY

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PRESSURE-SEATED AIR VALVES

THE VALVE THAT NEVER LEAKS

Cleco Valves improve with use; they do not require any attention after installation.
Cleco Valves are made in sizes to suit all requirements from ¼-in. to 2-in. outlets.
Cleco Valves fill all requirements between Air Compressor and Air Tools.

Style SL

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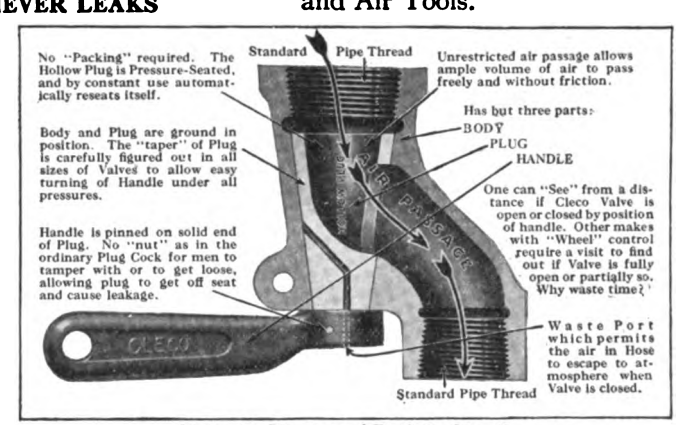
No "Packing" required. The Hollow Plug is Pressure-Seated, and by constant use automatically reseats itself.
Standard Pipe Thread
Unrestricted air passage allows ample volume of air to pass freely and without friction.
Has but three parts:
BODY
PLUG
HANDLE
Body and Plug are ground in position. The "taper" of Plug is carefully figured out in all sizes of Valves to allow easy turning of Handle under all pressures.
AIR PASSAGE
One can "See" from a distance if Cleco Valve is open or closed by position of handle. Other makes with "Wheel" control require a visit to find out if Valve is fully open or partially so. Why waste time?
Handle is pinned on solid end of Plug. No "nut" as in the ordinary Plug Cock for men to tamper with or to get loose, allowing plug to get off seat and cause leakage.
CLECO
Waste Port which permits the air in Hose to escape to atmosphere when Valve is closed.
Standard Pipe Thread

Style LW

Style FWL

Style RA

Write for Illustrated Bulletin No. 48

There is a Cleco Valve made for every need on Air Systems, from Compressor to the Air Tool and for Hose Lines.

Style PO

Multiple Outlet Valves are made in all sizes for Machines having Double-Acting Pistons and for Foundry Molding Machines.

THE CLEVELAND PNEUMATIC TOOL COMPANY, Main Office and Works CLEVELAND, OHIO

New York Boston St. Louis Chicago Philadelphia Pittsburgh San Francisco Detroit Minneapolis

CLEVELAND PNEUMATIC TOOL CO. of Canada, Limited 84 Chestnut St., Toronto, Ont. 84 Craig St. W., Montreal, Que.

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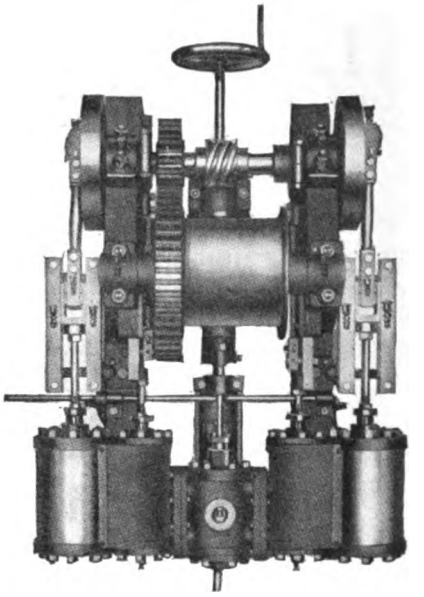
SPEEDY ASH HOISTING

IS PERFORMED BY

THE "MUNDY" ASH HOIST



BUILT TO THE SPECIFICATIONS OF THE U. S. NAVY.
CONSTRUCTED WITH 4½ x 6 in. STEAM CYLINDERS.
USUALLY BOLTED IN A VERTICAL POSITION ON BULKHEAD, REQUIRING A MINIMUM OF SPACE.
CAPACITY 500 LBS. ROPE SPEED 400 FT. PER MIN.

WINDLASSES STEERING ENGINES
TELEMOTORS
CAPSTANS CARGO WINCHES

SEND FOR CATALOG OF MARINE AUXILIARIES

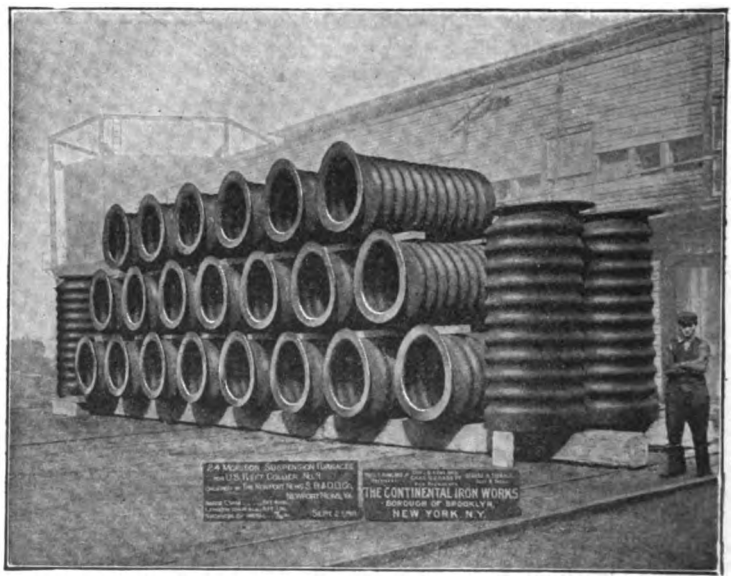
J. S. MUNDY HOISTING ENGINE COMPANY

ENGINEERS AND MANUFACTURERS Established 1869 NEWARK, N. J.

MORISON SUSPENSION FURNACES

for

LAND and MARINE BOILERS



UNIFORM THICKNESS
EASILY CLEANED
UNEXCELLED STRENGTH

MADE TO UNITED STATES,
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OR ANY OTHER REQUIREMENTS

MADE IN THE UNITED STATES BY

THE CONTINENTAL IRON WORKS

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Established 1859 Greenpoint Ferry from East 23rd Street, New York Incorporated 1887

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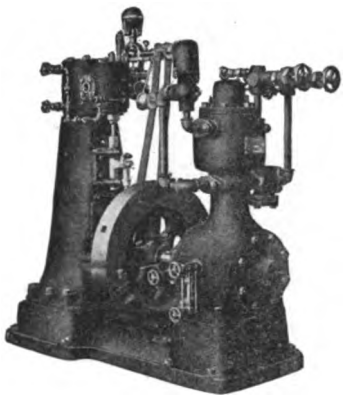
YORK MARINE REFRIGERATING MACHINERY



—is designed and built to meet the exacting conditions encountered on board ships—Reliability and Flexibility in operation, occupying a minimum deck space and headroom.

The special design and arrangement of the Compressor and Engine, or Motor, on the same bed plate enables both to be dissembled without additional deck space.

The Compressors—both Ammonia and CO_2—are built in various types and sizes, from ¼ ton refrigerating capacity upwards, and may be actuated by any available power.

Condensers, Brine Coolers, Scuttle Butts and Ice Making Systems are likewise varied in type and design to suit the particular ship on which they are installed.

York Refrigerating Systems are scientifically designed and built by Specialists, who have devoted over 35 years to the development of this class of machinery exclusively.

Consultation on any Refrigerating Problem invited.

YORK MANUFACTURING COMPANY

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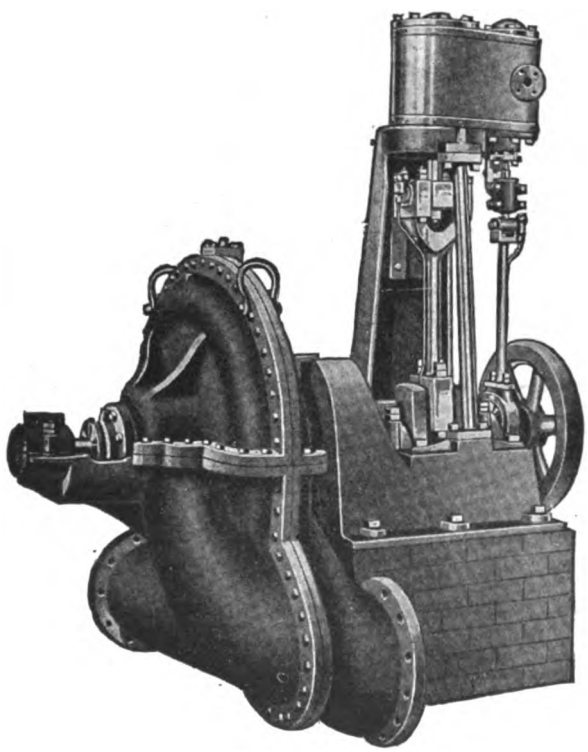

Double Suction Pump directly connected to Steam Engine for Surface Condensers.

MORRIS is specializing on PUMPS for Surface Condensers.

A list of our customers would include the leading ship building companies of the United States and Canada.

Whether you require one or one hundred outfits we can take care of your requirements.

We build a complete line of Centrifugal Pumps of all sizes. Also Steam Engines, Stationary and Marine, up to 1,000 H. P.

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Builders of Centrifugal Pumps, Hydraulic Dredges, Steam Engines

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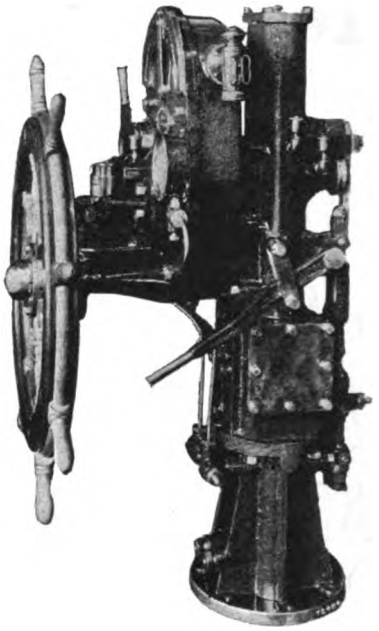
ELECTRIC STEAM AND HAND OPERATED MARINE AUXILIARIES



Quality demonstrated by years of service on vessels of all types.

MACTAGGART SCOTT HYDRAULIC TELEMOTORS

Most dependable Telemotor made. Free from troubles most frequently experienced with other makes. Stock carried for immediate delivery in Seattle and New York.

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Sound judgment must be exercised in buying punches and shears. The machine itself represents only what is visible to the eye and what is represented or misrepresented by the seller.

In expensive massive machinery it often takes years to determine the true value.

The real criterion is the organization in back of the machine. Its record, its policies—all must be considered.

Investigate Clevelands.

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THE CLEVELAND PUNCH & SHEAR WORKS CO.

Main Office & Works · CLEVELAND, OHIO
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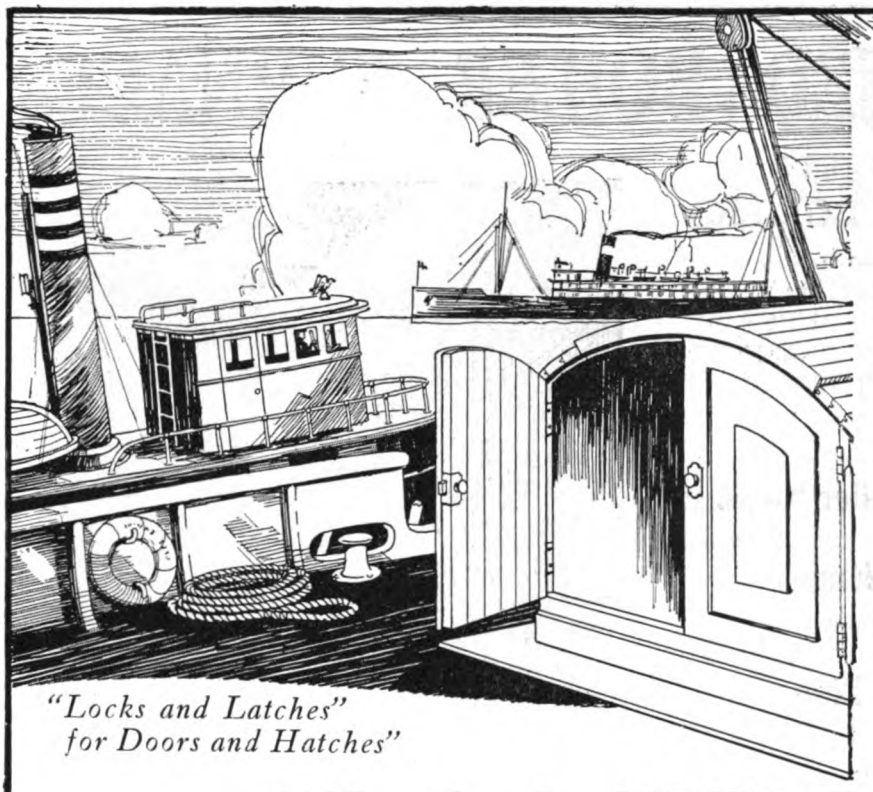

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We carry in stock at all times a complete line

For Immediate Delivery

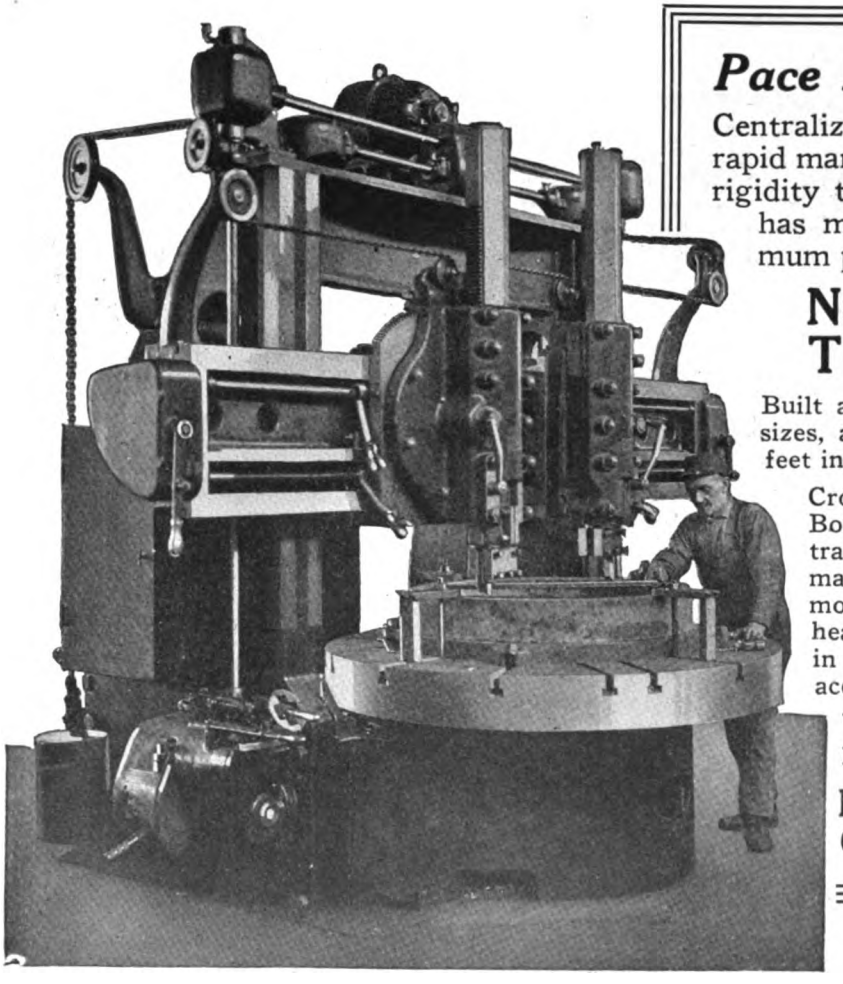
Tell us what you want, and you get it—quick. Tiebout clients are always satisfied with Tiebout Service.

A copy of our complete illustrated catalogue on your desk is a big buying help. Where shall we send it?

W. & J. TIEBOUT

Established 1853
118 Chambers Street

Incorporated 1892
New York City



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Centralized control which permits easy, rapid manipulation, and with strength and rigidity to stand up to fast, hard cutting has made it possible to attain maximum production with

N-B-P BORING and TURNING MILLS

Built as illustrated in 44, 53, 62 and 73 inch sizes, and in other heavier types up to 42 feet in diameter.

Cross rail is raised and lowered by power. Both bars and saddles have power rapid traverse, variable and reversible automatic feeds and hand fine adjustment. All movements are independent for each head. The wide use of these machines in shops of all kinds emphasizes their acceptance as a standard of quality.

We'll be glad to send catalogues and prices.

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All sizes, plain or flanged ends for

LAND and MARINE BOILERS

Made in accordance with
UNITED STATES STEAMBOAT INSPECTION, AMERICAN BUREAU and LLOYD'S REGISTER OF SHIPPING BUREAU OF VERITAS
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Seamless Forged Steel Boiler Nozzles
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in stock for prompt shipment

Lap Welded Steel Pipe
Sizes 12 to 72 inches

Manufactured by

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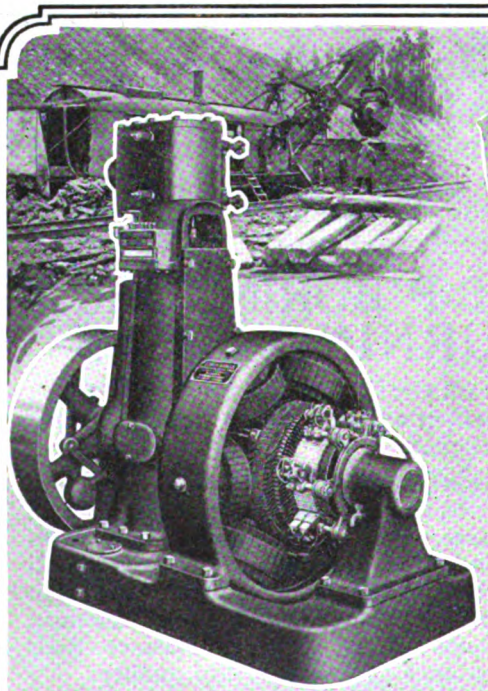

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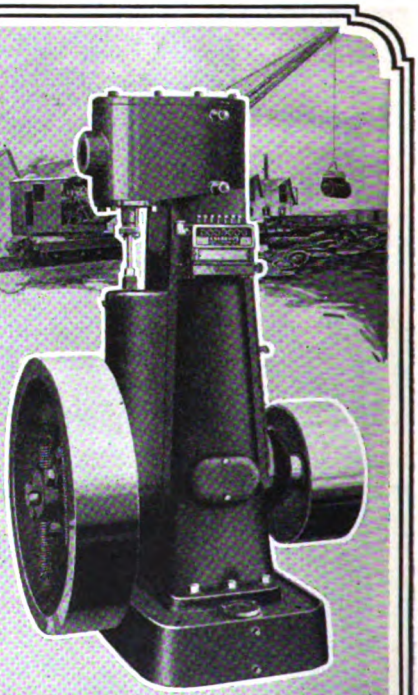
THE STANDARD FOR EFFICIENCY-DURABILITY -SERVICE



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Engberg Engines are desirable for all power purposes. They combine every distinctive, discriminating and serviceable feature essential for proper performance.

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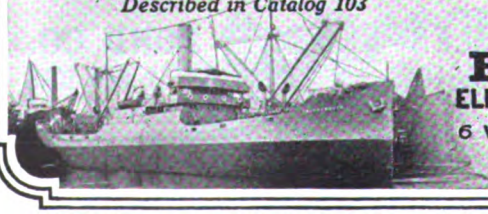

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Corrugated Tubes
Separate Water Channel
Plain Covers

Straight Tubes
Easy Cleaning
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Cast Iron Shell will not rust out.

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CONTRACTING **ENGINEERS** CONSULTING

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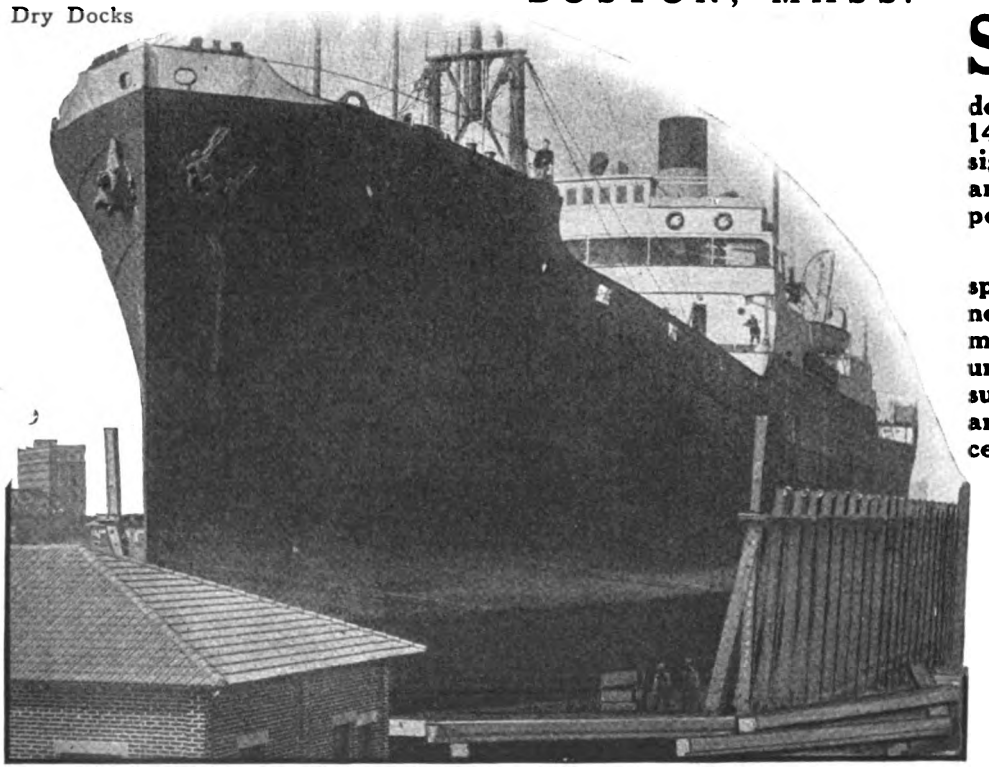

SINCE 1854 we have been specializing in designing dry docks. Today more than 140 dry docks of our design are in operation—ample proof of our experience.

Our experience, our specially trained engineers, our construction methods comprise a unique service which assures economy in design and construction and certainty in results.

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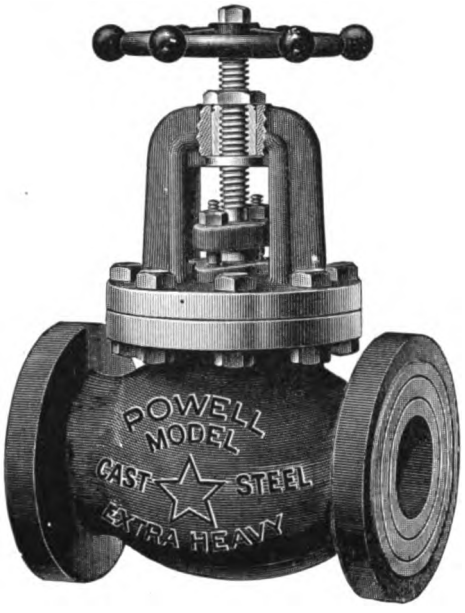

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Cast Steel

Some of the largest shipbuilding companies in the United States are specifying

Powell Cast Steel Valves

They are absolutely dependable in every particular, being entirely free from porous defects. All valves are given a thorough tensile strength and hydrostatic pressure test before shipments are made.

Specify POWELL CAST STEEL VALVES

THE WM. POWELL CO.

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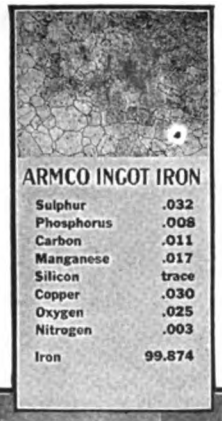

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WELDING RODS *and* ELECTRODES

The usual analysis of iron and steel does not carry beyond the big five, namely:

Carbon Manganese Phosphorus Sulphur Silicon

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Carried in stock by distributors in all industrial centers.

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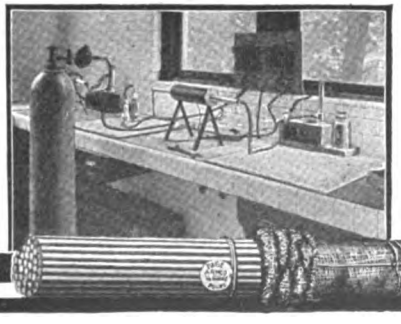

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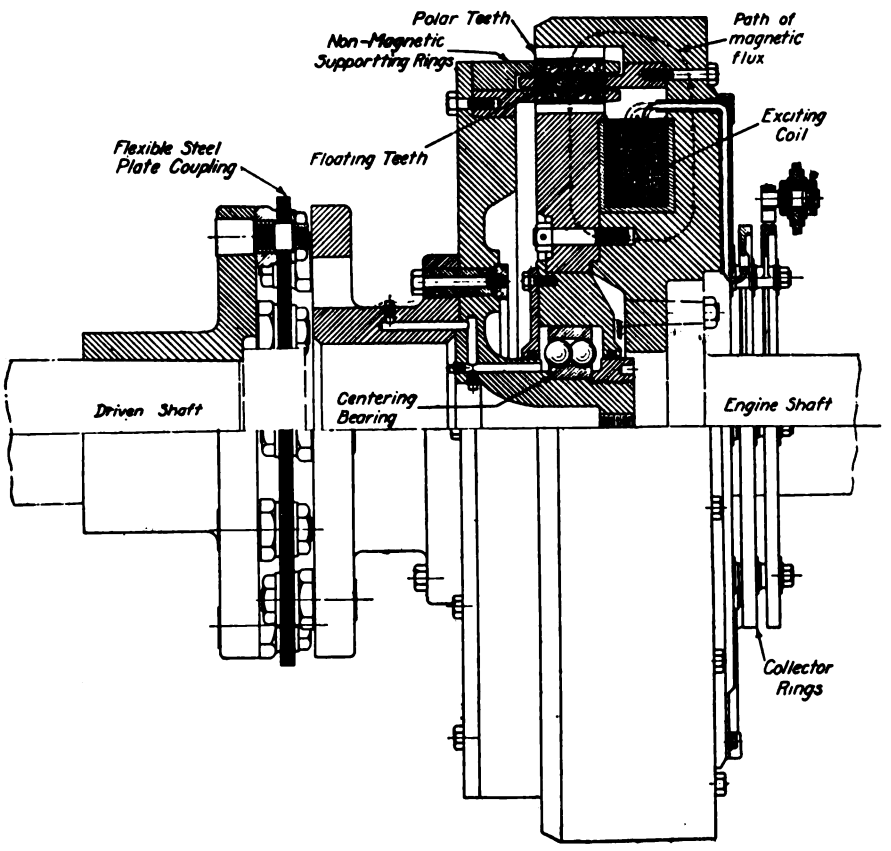

Flywheel Type Clutch Coupling as used with 700 H. P. Diesel Engine.

THE SPERRY
Magnetic Clutch Coupling

The first *true* Magnetic Clutch Coupling for *commercial purposes.*

Has the *velvet touch* of the perfect *air* drive.

Is *self-aligning* and *perfectly flexible* both *axially* and *radially.*

Gives *perfect* control without *jar, strain* or *shock.*

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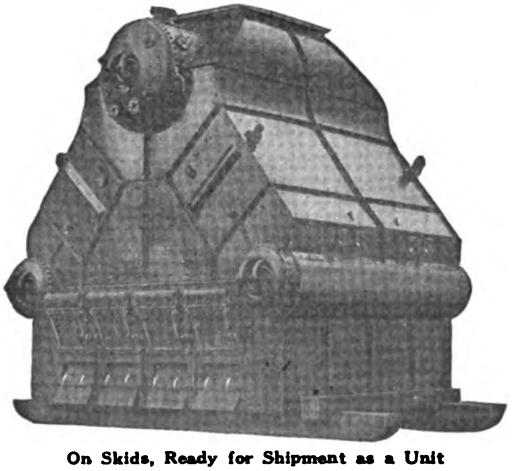
LUDLUM WATER TUBE MARINE BOILER
The New Marine Standard

A Self Contained Unit. Shipped Fully Erected.

All Wrought Steel.



No Stray Bolted Surfaces. A Superior Oil Burner. Unequaled Compactness.

On Skids, Ready for Shipment as a Unit

Quick deliveries assured from ample stock of material on hand.
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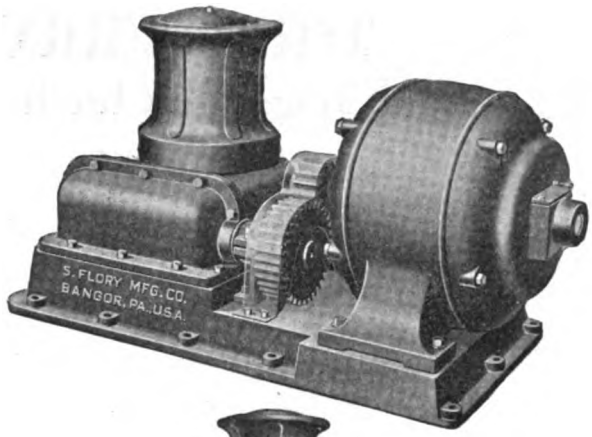

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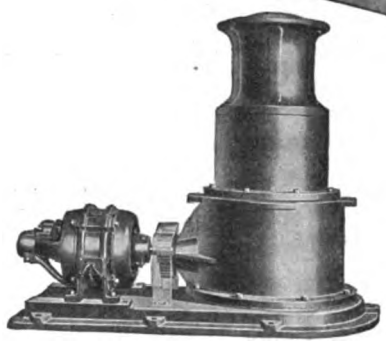
Any Type Any Size

Steam—Electric—Hand

For Battleships or Barges

Special Machines Designed to Meet Requirements



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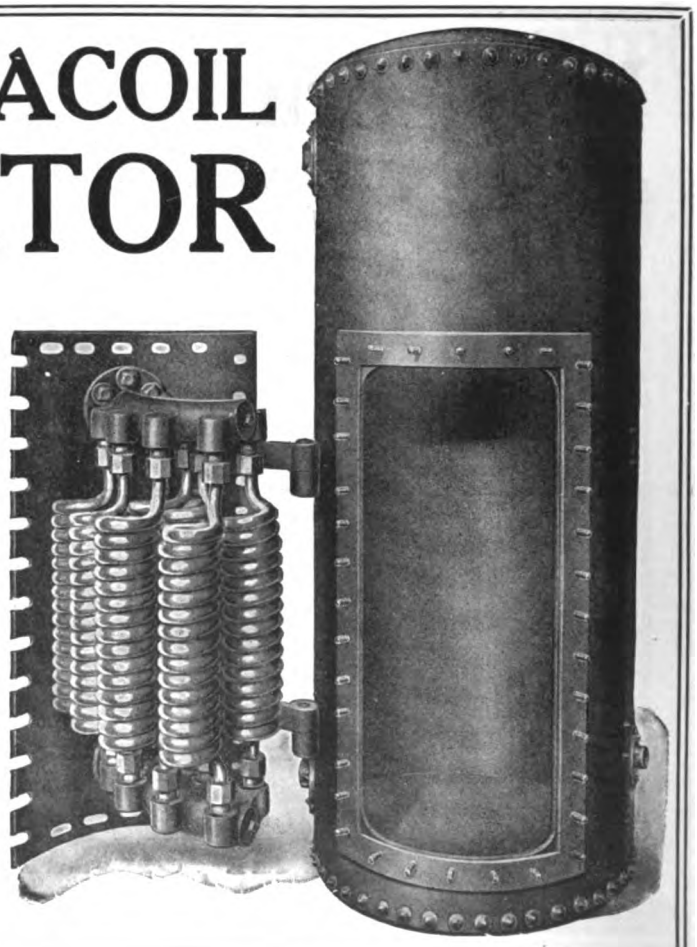
The R&D PARACOIL EVAPORATOR

R & D Paracoil Evaporators and Distilling Condensers are made for both single and multiple-effect plants in marine service.

Constructed with cast iron or steel plate shells, of all capacities up to 50 tons per 24 hours per unit.

Improved cleaning facilities make maintenance expense low.



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The first issues of a series of new bulletins are now ready for distribution and will be mailed upon request.

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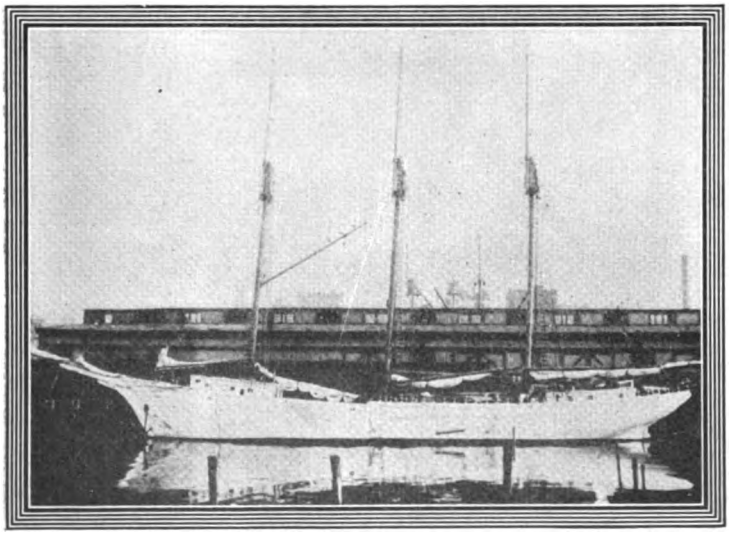

The Schooner "Samuel Courtney"

From New Foundland to Piraeus, Greece, in 23 Days

That's a record established by the "Samuel Courtney" soon after her "C-O" power plant was installed. Her master is enthusiastic in his praise of the "C-O" engines for their economy and dependability.

The "Samuel Courtney" is 167 ft. long; keel, 138 ft.; beam, 35 ft.; draft, 14 ft.; net tonnage, 441. Two 100 H.P. "C-O" engines drive it at 7 knots per hour loaded.

"C-O" marine engines economically use low priced fuel oils. They are easy to start—simple to operate. Ask for full information about this proven work-boat power.

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Oil Engines - Pumps - Electric Motors and Generators - Fairbanks Scales - Railway Appliances - Farm Power Machinery

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SUPERINTENDING ENGINEERS

WHEN YOUR VESSELS ARRIVE IN PORT ARE FIRESIDES OF BOILERS CLEAN AND FREE FROM SOOT? IF NOT YOU ARE WASTING FUEL.

DO YOU EMPLOY SHORE LABOR TO PULL RETARDERS, SWEEP TUBES AND CLEAN COMBUSTION CHAMBERS? IF SO IT IS UNNECESSARY EXPENSE.

We have authentic records of a 10,000 ton ship equipped with Scotch boilers, Howden forced draft, tube retarders and Bennett Flue Blowers having made 67 voyages on the Great Lakes without cleaning firesides of boilers except by use of the Bennett Blowers, and the records show that that ship continued to make maximum speed with minimum fuel consumption.

Bennett Blowers are in satisfactory use on hundreds of vessels of leading steamship companies.

Installed on 30 days' trial free of cost to owners.

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In storm or calm they stand the test of service
Approved by all Bureaus
AMERICAN STEEL FOUNDRIES
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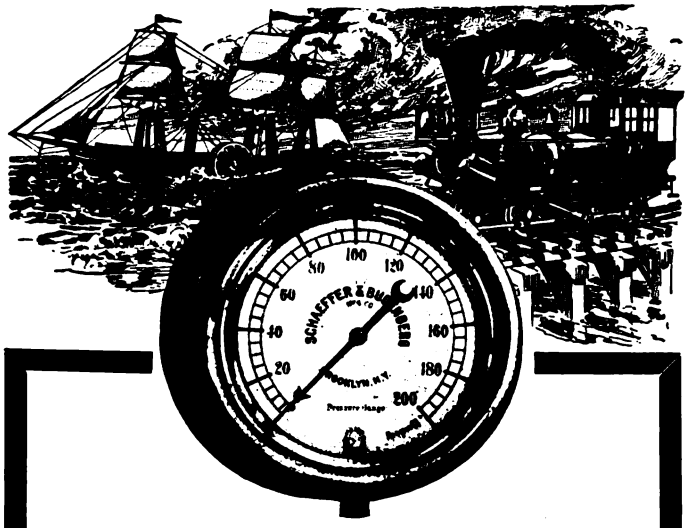

Standard Then— and Standard NOW

Back in the old days before the Civil War, when sails were still considered a necessary adjunct to steam craft, and before locomotive builders had learned that they could lift the boiler above the wheels, engineers had learned to associate the word "Standard" with

S&B Gauges

For Every Requirement

Somewhat crude in outward appearance were those original gauges, built by us over sixty years ago, but so fine was their workmanship and so accurate their readings that they quickly won the respect of the engineering world.

Today an engineer will nod his head in approval when you mention S & B Gauges. To him they mean the standard by which all other gauges are judged.

There is an S & B Gauge for every requirement—steam, vacuum, water, gas, air, ammonia, etc.—each substantially constructed to withstand long service. Consistent with their internal perfection, all S & B Gauges are made with non-glare dials, for easy and accurate reading.

Write Today for Catalog A-23, giving full particulars.

THE Schaeffer & Budenberg MFG. CO.

Makers of Columbia Recording Thermometers and Gauges with Time Punch, etc.

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"She's Just in From Singapore"

—last time she made New York was ten years ago, and then we chipped all the rust and scale out of her double bottom. Gave her a general clean-up and coated her inside with Briggs Bituminous Composition. Since then she's been carrying every kind of cargo there is—yet when I went through her this morning, there wasn't a speck of rust."

—"Bituminous Bill"

Briggs Bituminous Composition

Gives lasting protection against rust and corrosion to ships' inner plating, tank tops, bunkers, engine and boiler settings, and all the out-of-the-way spots that would otherwise require constant attention.

It forms a firm, elastic, wear-resisting film which is not affected by acids, alkali, moisture, heat or cold. It will not crack, chip or flake off—one coating will last for years. For thorough protection, specify Briggs.

Write for our booklet, "The solution of the Corrosion Problem."

Briggs Bituminous Composition Co.,
Incorporated
17 Battery Place New York, N. Y.

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BRIGGS **BITUMINOUS COATINGS**
The Solution of the Corrosion Problem

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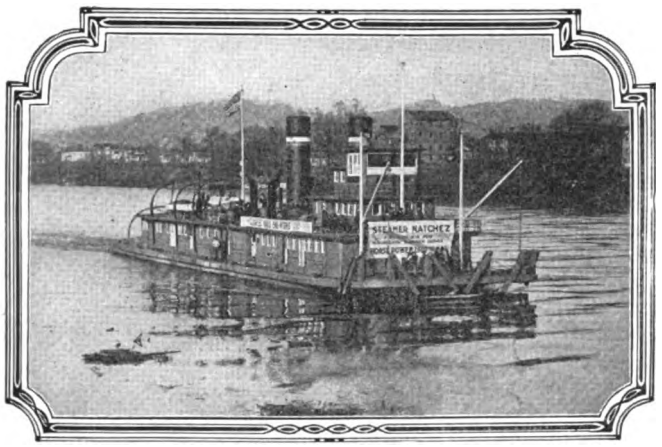


Columbian Bronze Propellers

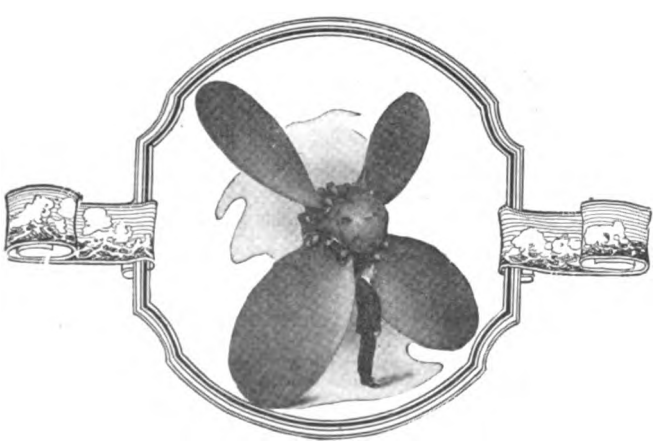
NATCHEZ—a Mississippi Warrior Service boat—is equipt with a pair of four blade 9′ 3″ diameter Columbian Bronze Propellers.

Five sister ships of the "Natchez" are likewise equipt with Columbian Bronze Propellers.

Mississippi Warrior Service subjects propellers to the hardest kind of service, as these boats maintain the channel clear of obstructions, keep the banks in repair, etc.

The War Department purchased Columbian Bronze Propellers for these boats because Bronze Propellers are more efficient and considerably more economical in the long run.

COLUMBIAN BRONZE CORPORATION
522 Fifth Avenue New York City



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THE genuine economy of having a commercial craft built throughout of the finest materials and the finest workmanship is without question.

Through our long experience in building the highest types of *pleasure* craft and their engines, we are especially well equipped to assure the speed and economical construction of steel and wooden vessels up to 300 ft. in length, including their propelling machinery.

We shall be pleased to estimate on the construction of harbor and seagoing tugs, oil tankers, fruit steamers, lighters, trawlers, cargo carriers and passenger boats of any type.

Write us for full information, and printed matter showing examples of our work.

CONSOLIDATED
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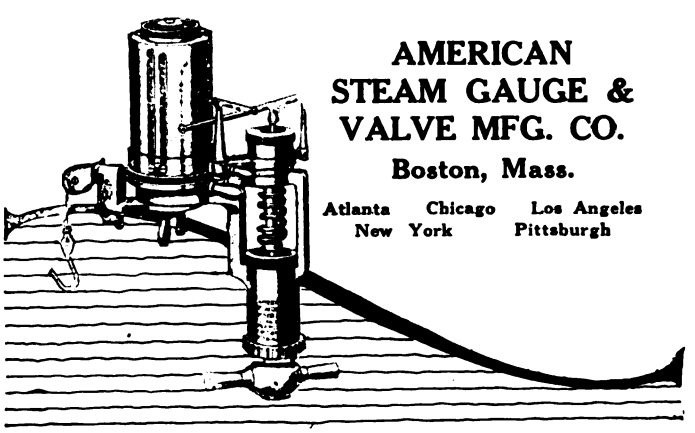

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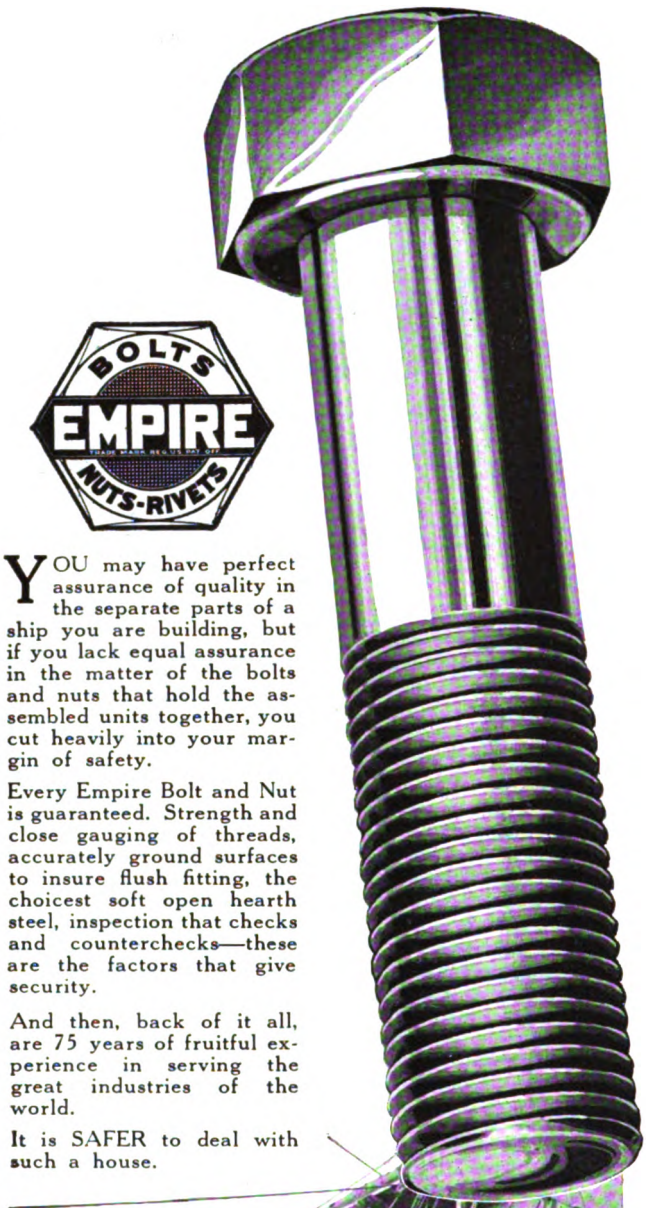

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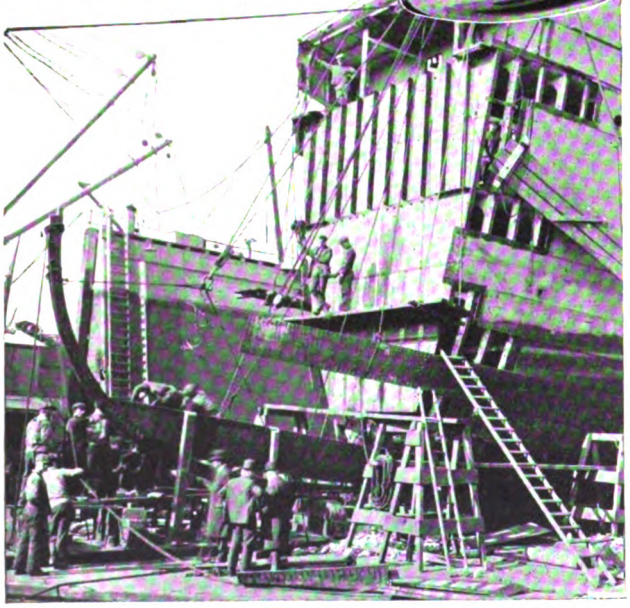

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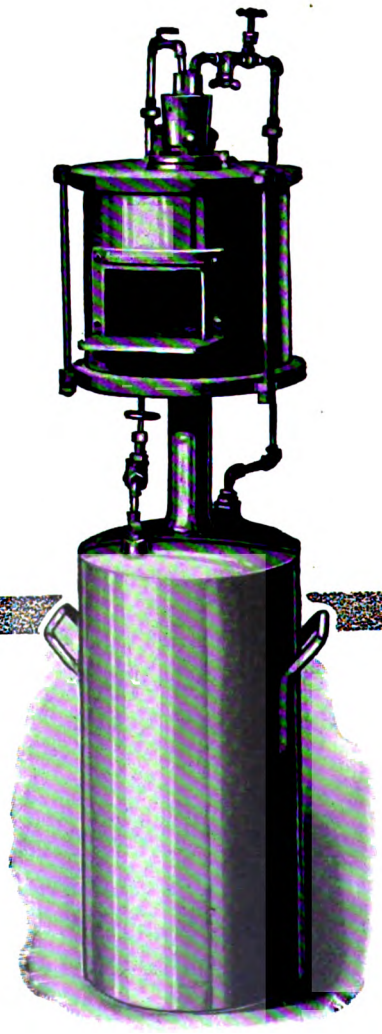

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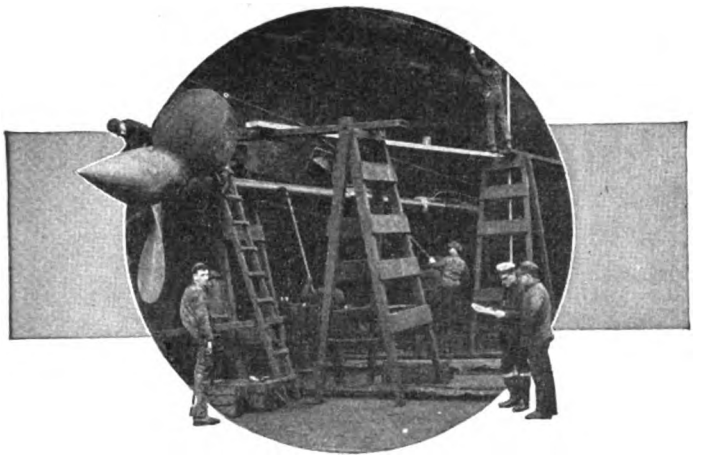

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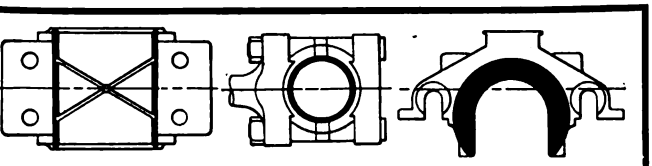

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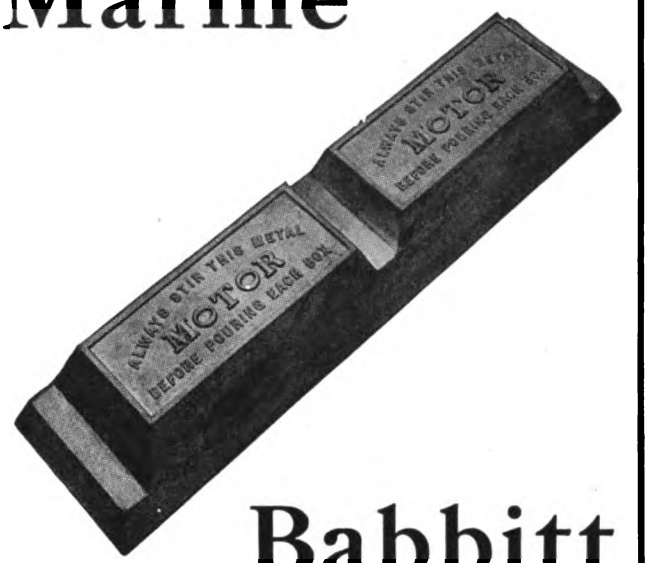

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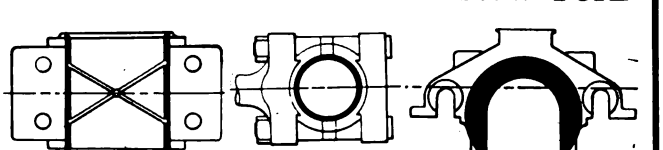

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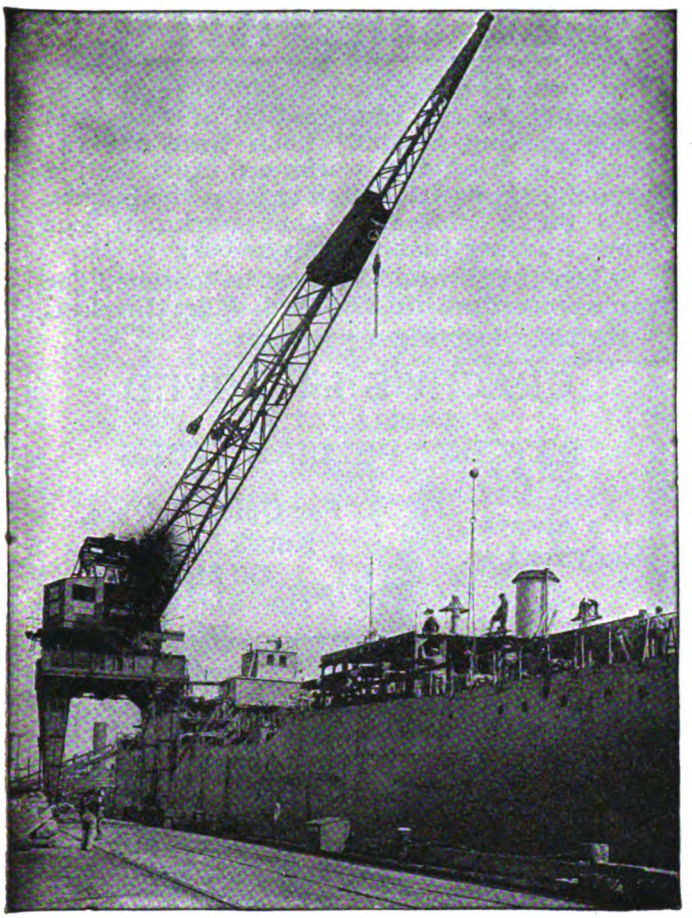

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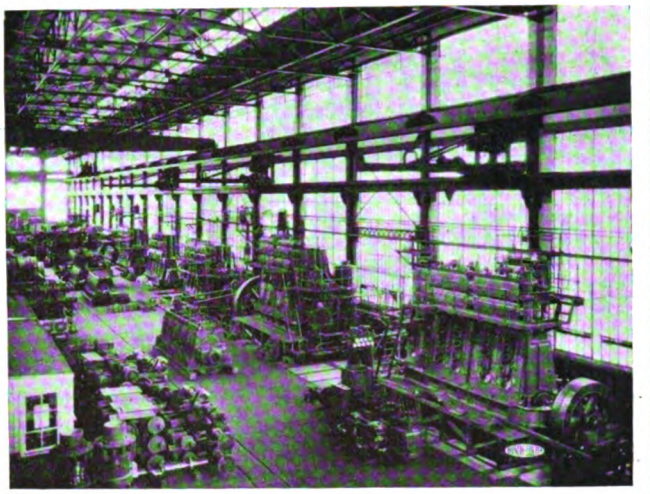

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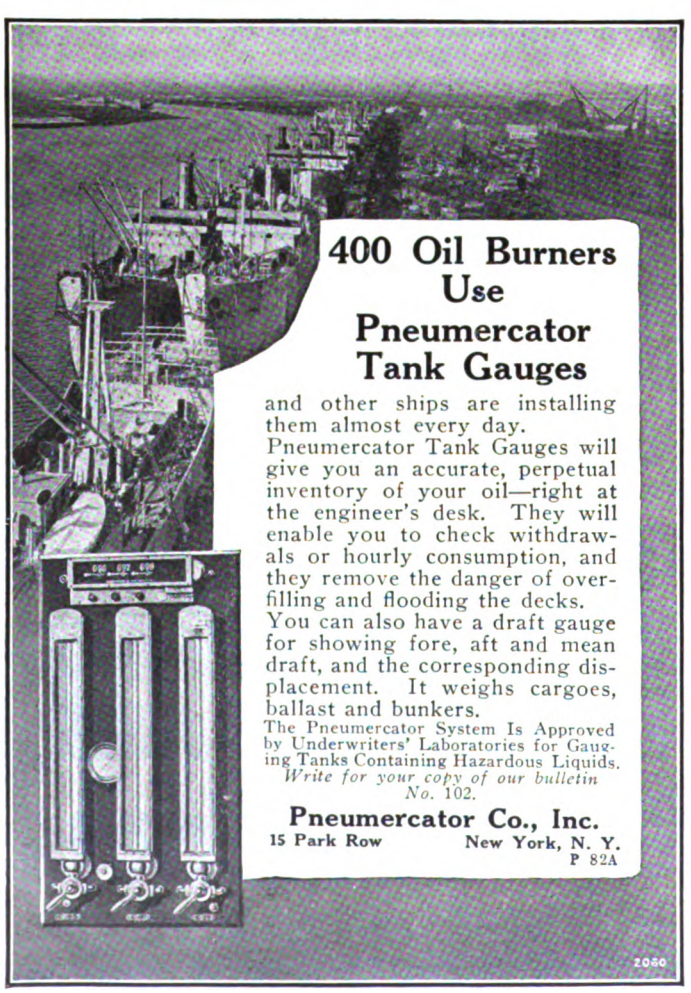

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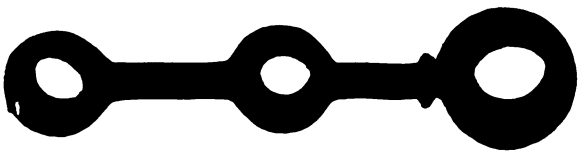

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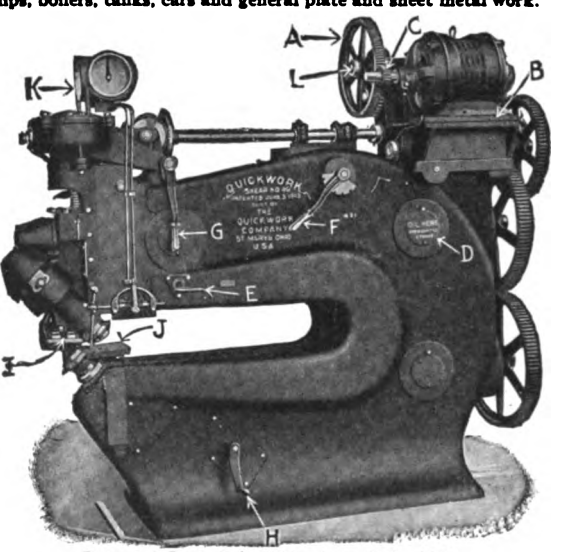

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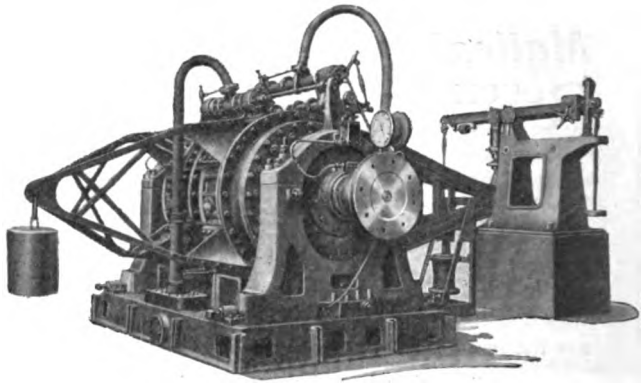

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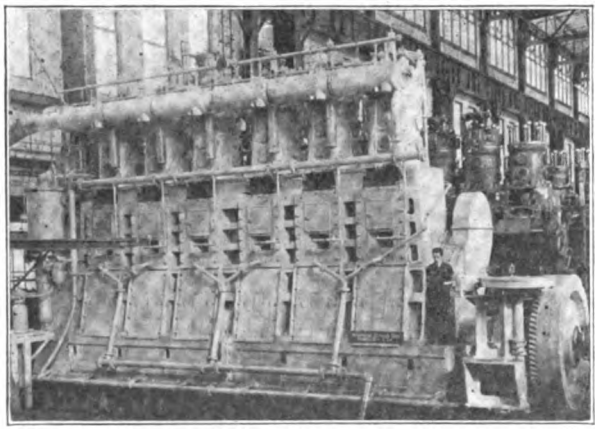

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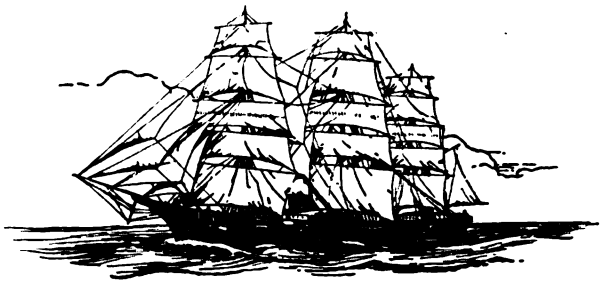

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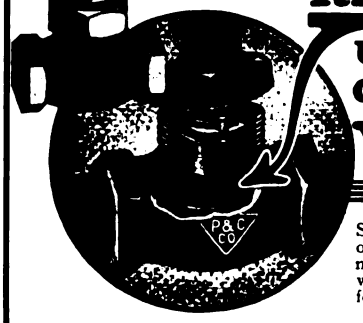

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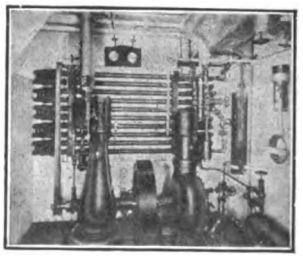

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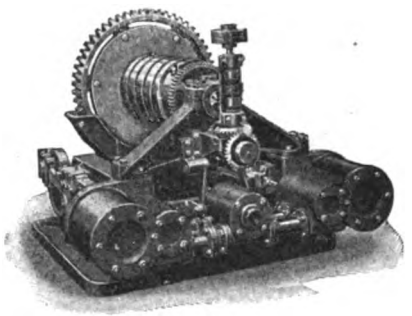

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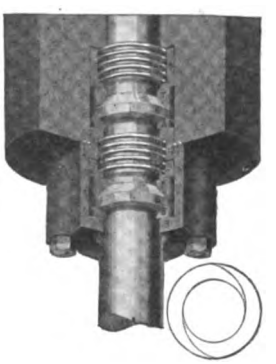

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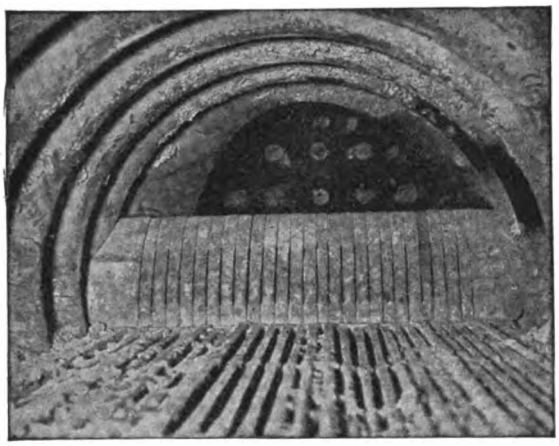

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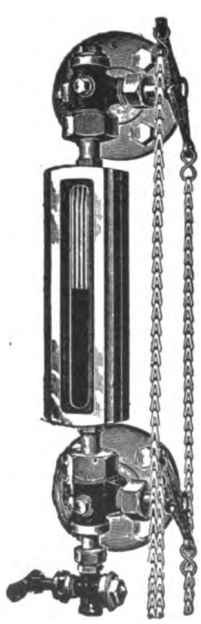

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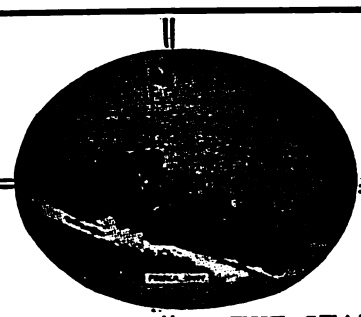

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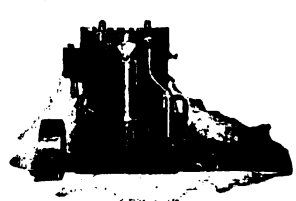

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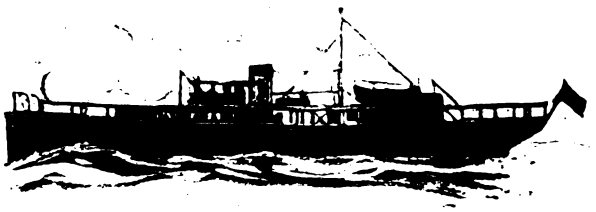

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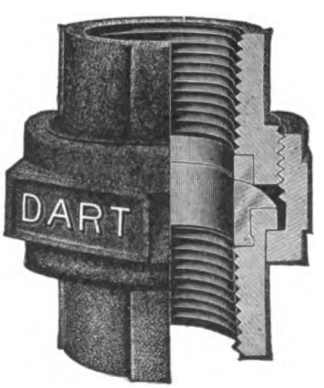

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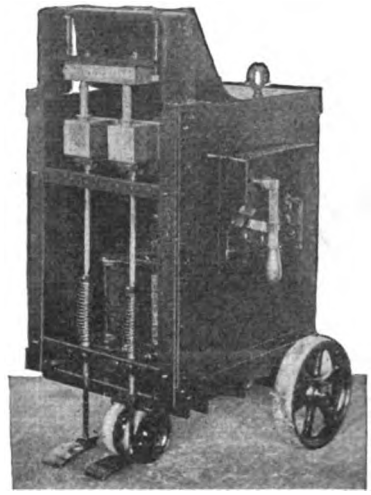

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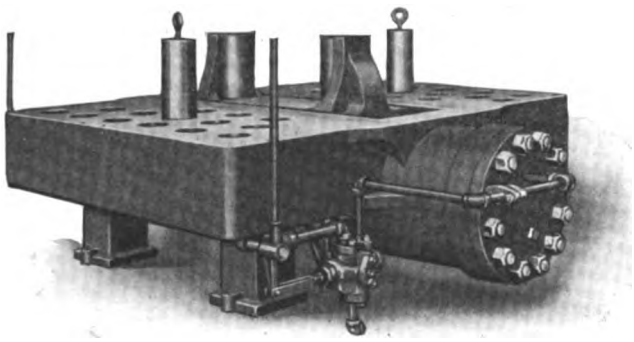

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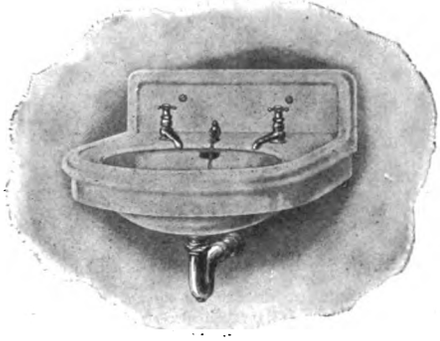

Plate S-208

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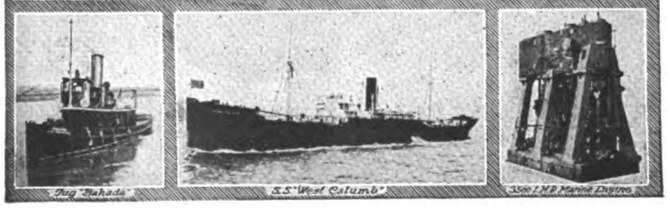

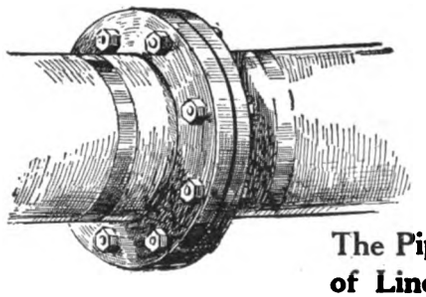

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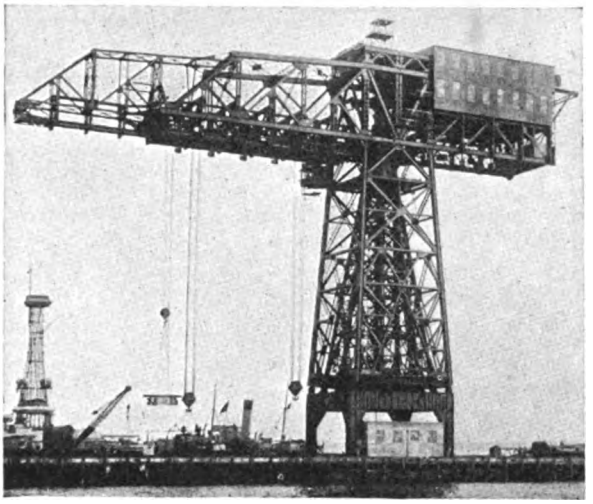

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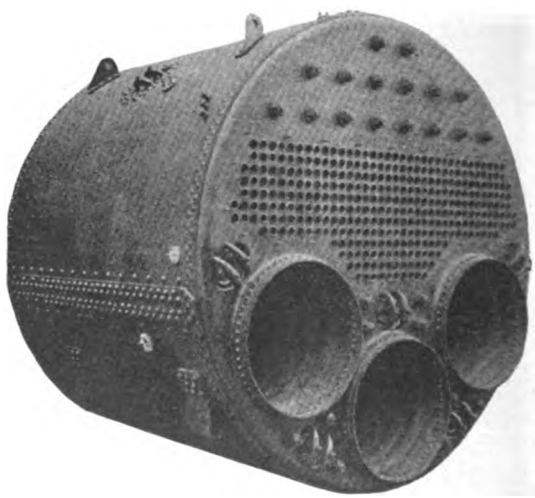

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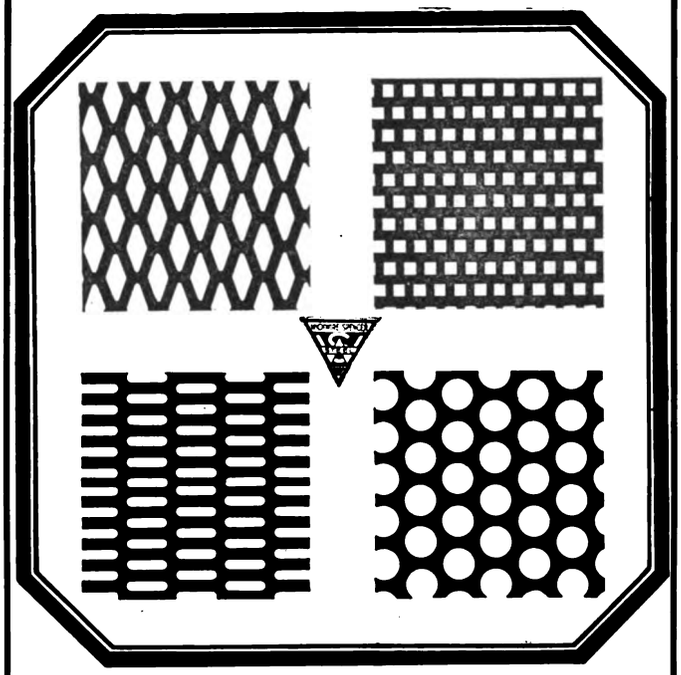

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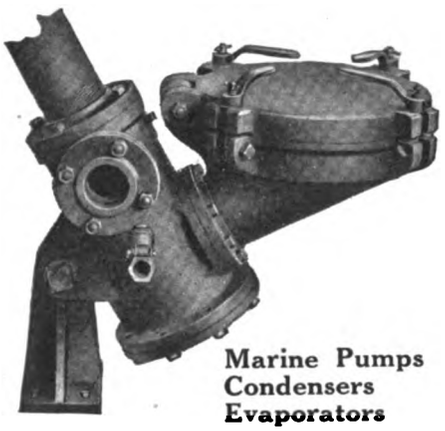

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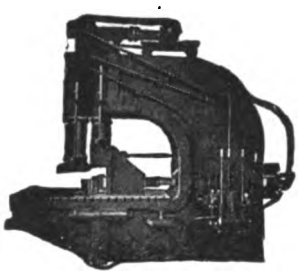

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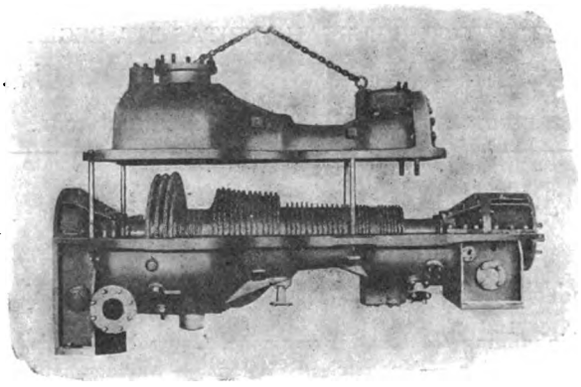

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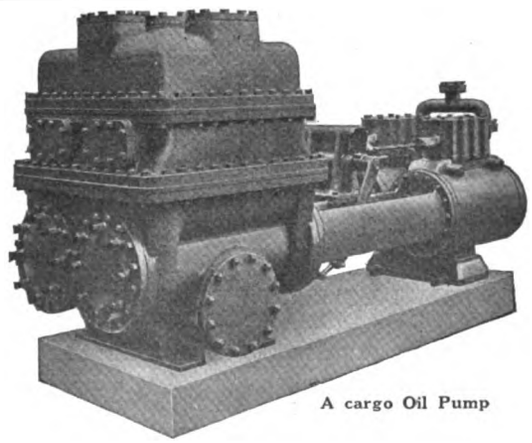

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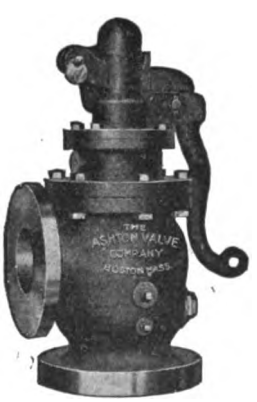

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Castings—Brass
Charleston Dry Dock & Machine Co.
Cory, Chas., & Son, Inc.
Crane Co.
Griscom-Russell Co.
Hyde Windlass Co.
Lunkenheimer Co., The
Powell Co., The William
Sands, A. B., & Son Co.
Tiebout, W. & J.
Williams, Wm. E.

Casting—Bronze
American Manganese Bronze Co.
American Steel Foundries
Charleston Dry Dock & Machine Co.
Chase Metal Works
Chase Rolling Mill Co.
Columbian Bronze Co.
Cory, Charles & Son, Inc.
Crane Co., The
Lunkenheimer Co., The
Powell Co., The William
Sands, A. B., & Son Co.
Tiebout, W. & J.
Williams, Wm. E.

Castings—Brass and Bronze
Bath Iron Works

Castings—Gray Iron
Norwalk Iron Works
Williams, Wm. E.

Castings—Monel Metal
International Nickel Co.

Castings—Steel
American Steel Foundries
Bethlehem Shipbldg. Corp.
Chase Metal Works
Chase Rolling Mill Co.
Crane Co., The
Griscom-Russell Co.
Hyde Windlass Co.
Lunkenheimer Co., The
National Malleable Castings Co.
Sands, A. B., & Son Co.

Ceilings
(Cabin)
Marine Decking & Supply Co.

Centrifugal Oil Purifiers
De Laval Separator Co.

Centrifugal Pumps
Alberger Pump & Condenser Co.
Fairbanks-Morse Co.
Ingersoll-Rand Co.
Morris Machine Works
National Marine Engine Works
Westinghouse Electric & Mfg. Co.
Wheeler Manufacturing Co.
Williams, Wm. E.

Chain
Cory, Chas., & Son, Inc.
Kearfott Engineering Co.
National Machine Engine Works
National Malleable Castings Co.

Chain Hoists and Blocks
Ford Chain Block Co.
Niles-Bement-Pond Co.
Union Hardware Co.
Williams, Wm. E.
Yale & Towne Mfg. Co.

Chain Pipe Wrenches
American Engineering Co.
Williams, Wm. E.
Williams Co., J. H.
Union Hardware Co.

Chain Stoppers
American Engineering Co.
J. S. Mundy Hoisting Engine Co.
Williams, Wm. E.

Chain Valve Wheels
Lunkenheimer Co., The
Powell Co., The William

Channels
Pollak Steel Co.

Charcoal Iron Boiler Tubes
Parkesburg Iron Co.
Williams, Wm. E.

Check Valves—Brass and Iron
Crane Co., The
Lunkenheimer Co., The
Mott Iron Works, J. L.
Powell Co., The William
Pratt & Cady Co., Inc.
Sands & Son Co., A. B.
Watson-Stillman Co.
Williams, Wm. E.

Chemicals
(See Boiler Compounds)

Chipping Hammers
(See Pneumatic Tools)

Chisels
Keller Pneumatic Tool Co.
Williams, Wm. E.

Chisel Blanks
Cleveland Punch & Shear Works Co.
Ingersoll-Rand Co.
Keller Pneumatic Tool Co.

Chronometers
Williams, Wm. E.

Chronometer Valves
Williams, Wm. E.

Chocks
American Engineering Co.
Williams, Wm. E.

Chock Fittings
Steward Davit and Equip. Corp.

Chucks
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.
Keller Pneumatic Tool Co.
Williams, Wm. E.

Circular Shears
The Quickwork Co.

Circulating Pumps
Alberger Pump & Condenser Co.
Davidson Company, M. T.
De Laval Steam Turbine Co.
Fairbanks-Morse Co.
Ingersoll-Rand Co.
Morris Machine Works
Warren Steam Pump Co.
Westinghouse Electric & Mfg. Co.
Wheeler Mfg. Co., C. H.
Williams, Wm. E.

Circulators
(See Boiler Circulators)

Clamps—Machinists and Tool Makers
Williams & Co., J. H.
Williams, Wm. E.

Clinch Rings
Williams, Wm. E.

Clocks
Ashton Valve Co.
American Steam Gage & Valve Mfg. Co.
Schaeffer & Budenburg Mfg. Co.
Williams, Wm. E.

Coal-Handling Machinery
Lidgerwood Mfg. Co.
McMyler Interstate Co.
Mundy, J. S., Hoisting Eng. Co.
Shepard Electric Crane & Hoist Co.

Coatings
(See Anti-Rust Coatings)

Cocks
(See Gauge Cocks)

Combined Air and Circulating Pumps
Wheeler Mfg. Co.

Companion Flanges
Crane Co., The
Lunkenheimer Co., The
Powell Co., The William
Williams, Wm. E.

Compasses
Sperry Gyroscope Co.
Williams, Wm. E.

Compositions
(See Ship's Compositions)

Compounds
(See Boiler Compounds)

Compression Riveters
(See Power Riveters)

Condensers
Alberger Pump & Condenser Co.
denser Co.
American Engineering Co.
Bath Iron Works
Consolidated Shipbuilding Corp.
Davidson Co., M. T.
Griscom-Russell Co.
Ingersoll-Rand Co.
Kearfott Engineering Co.
National Marine Engine Works
Row & Davis, Engineers, Inc.
Warren Steam Pump Co.
Westinghouse Electric & Mfg. Co.
Wheeler Condenser & Eng. Co.
Wheeler Mfg. Co., C. H.
Williams, Wm. E.

Condenser Tubes
Chase Metal Works
Chase Rolling Mill Co.
Kearfott Engineering Co.
Wheeler Condenser & Eng. Co.
Williams, Wm. E.

Conduit Fittings
Crouse-Hinds Co.

Connecting Rods
Pollak Steel Co.
Williams & Co., J. H.

Consulting Engineers
(See Engineers, Consulting)

Conveying Machinery
Lidgerwood Mfg. Co.
McMyler Interstate Co.
Mundy, J. S. Hoisting Eng. Co.

Conveyors (Coal)
(See Conveying Machinery)

CO_2 Ice Machines
(See Conveying Dioxide Machines)

Coolers—Oil Coppers
(See Oil Coolers)

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"NACO" Electric CAST STEEL ANCHOR CHAIN CABLE

Meets every requirement of a dependable Anchor Chain Cable

Strength — Tests show the tensile strength of Naco Chain to exceed that of ordinary commercial anchor chain cable, size for size, by over 70%. This great strength makes it possible to furnish Naco Chain to specifications 40% higher than those established on any other type of Anchor Chain Cable.

Resistance to Shock — Subjected to the most severe usage of marine service, Naco Chain has established a new standard of safety for life and property. Because of its great tensile strength and high elastic limit, it withstands without distortion, shocks that destroy ordinary chain cables.

Uniformity — The process of manufacture, by which each link of the same type and size is made off identical patterns, assures absolute uniformity in size and shape of links.

Permanency of Shape — The solid stud cast integral with the link, together with the inherent quality of Naco Steel, which enables Naco Chain to withstand excessive shocks without distortion, protect the permanency of shape of each link throughout the life of the chain.

Ease of Operation — Because of this uniformity and permanency in size and shape of links, Naco Chain always operates smoothly over the wildcat. The casting of the stud solid with the link eliminates the possibility of loose or lost studs and assures against kinking.

Resistance to Corrosion — The corrosive action of salt water is less on Naco Steel than on other chain materials. In tests of long duration, Naco Cable lost less than half as much weight as wrought iron cable exposed to the same conditions. Its homogeneous structure resists the corrosive action, which eats into the fibre or laminations of wrought iron, in constantly increasing areas, and with deeper action than is visible, or can be measured.

Resistance to Wear — Naco Chain has superior wearing qualities. Because of its greater hardness (its Brinnell Number averages 260, as against wrought iron's 110) Naco Chain affords a correspondingly increased resistance to we .r and abrasion.

Weight — In weight, size for size, Naco Chain is made the same as wrought iron; insuring the sag required for easy riding at anchor.

Official Rating — Naco Chain carries the official approval of Lloyd's Register of Shipping, American Bureau of Shipping, and the Bureau Veritas, and is furnished to their specifications.

THE NATIONAL MALLEABLE CASTINGS CO.

CLEVELAND, OHIO

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Copper
(See Brass and Copper)

Copper Tubes, Rods, Wires
Chase Metal Works
Chase Rolling Mill Co.
Williams, Wm. E.

Cordage
(Also see Rope and Wire Rope; also Twine)
American Mfg. Co.
Columbian Rope Co.
Griscom-Russell Co.
Plymouth Cordage Co.
Whitlock Cordage Co.
Williams, Wm. E.

Corrugated Furnaces
Continental Iron Works, The

Counters
(See Revolution Counters)
American Steam Gage & Valve Mfg. Co.
Cory, Chas., & Son, Inc.
Schaeffer & Budenburg Mfg. Co.

Couplings
(See Hose Couplings)

Coverings—Non-Conducting
(See Non-conducting Coverings)

Cranes
(Also see Floating Cranes and Shipyards Whirlers)
American Engineering Co.
Brown Hoisting Machinery Co.
Chambersburg Engineering Co.
McMyler Interstate Co.
Niles-Bement-Pond Co.
Shepard Electric Crane & Hoist Co.

Crank Shafts
Pollak Steel Co.
Williams & Co., J. H.

Creosoted Timbers, Piling, Etc.
Long-Bell Lumber Co.

Cutters
Waycott, A. W.
Williams, Wm. E.

Cutting Compounds
Williams, Wm. E.

Cutting and Welding
(See Welding)

Cylinder Boring Bars
Niles-Bement-Pond Co.
Williams & Co., J. H.

Cylinder Relief Valves
(See Valves)

Cylinders for Compressed Air, Gas, Etc.
Continental Iron Works, The
National Tube Co.

Damper Regulators
Atlas Valve Co.

Davits
Stewart Davit & Equip. Corp.

Deck Fittings
Steward Davit & Equip. Corp.
Williams, Wm. E.

Deck Plates
Sands & Son, A. B.
Williams, Wm. E.

Deck Pumps
Sands & Son Co., A. B.
Warren Steam Pump Co.
Williams, Wm. E.

Decking
Long-Bell Lumber Co.
Marine Decking & Supply Co.

Derricks
Lidgerwood Mfg. Co.
McMyler Interstate Co.
J. S. Mundy Hoisting Engine Co.

Derrick Cars
McMyler Interstate Co.

Derrick Irons
Lidgerwood Mfg. Co.
J. S. Mundy Hoisting Engine Co.

Detaching Gear (Boat)
Steward Davit & Equip. Corp.

Diaphragm Pumps
Hyde Windlass Co.

Die Blocks
Pollak Steel Co.

Dies
Brubaker & Bros., W. L.
Cleveland Punch & Shear Works Co.
Williams, Wm. E.

Diesel Engines
(Also see Engines, Oil)
Busch-Sulzer Bros. Diesel Engine Co.
Hadfield-Penfield Steel Co.
Kearfott Engineering Co.
McIntosh & Seymour Corp.
New London Ship & Engine Co.
Winton Engine Works

Direct-Connected Sets
(See Electrical Plants)

Direction and Revolution Indicators
Cory, Chas., & Son, Inc.

Disengaging Gears
Steward Davit & Equip. Corp.

Distillers
(See Evaporators)

Dock Companies
American Balsa Co.

Dock Fittings
Williams, Wm. E.

Draft Gauges
American Steam Gage & Valve Mfg. Co.
Pneumercator Co.
Schaeffer & Budenburg Mfg. Co.
Williams, Wm. E.

Drain Valves
(See Valves)

Drawing Materials
(Board, Cloth, Paper, Ink, Etc.)

Dredges
Morris Machine Works

Dredging Machinery
Alberger Pump & Condenser Co.
American Engineering Co.
Flory Mfg. Co.
Lidgerwood Mfg. Co.
McMyler Interstate Co.
Morris Machine Works
Mundy Hoisting Engine Co., J. S.
National Marine Engine Works

Dredging Pumps
Morris Machine Works
National Marine Engine Works

Drift Pins
Cleveland Punch & Shear Works Co.
Williams, Wm. E.

Drilling Machines
Niles-Bement-Pond Co.

Drills
Rich Tool Co.
Williams, Wm. E.

Drills, Electric
(See Electric Drills)

Drills, Pneumatic
(See Pneumatic Tools)

Drills, Portable
(See Portable Drills)

Drills, Wall Radial
(See Radial Drills)

Drop Forgings
(Eye Bolts, Wrenches, Etc.)
Pollak Steel Co.
Williams & Co., J. H.
Williams, Wm. E.

Drop Hammers
Chambersburg Engineering Co.
Niles-Bement-Pond Co.

Dry Dock Pumps
Morris Machine Works

Dry Docks
(Manufacturer and Marine Railways)
Bethlehem Shipbldg. Corp.
Crandall Engineering Co.

Dry Docks and Marine Railways
Baltimore Dry Docks & Shipbuilding Co.
Bethlehem Shipbuilding Corp., Ltd.
Charleston Dry Dock & Machine Co.
Merchant Shipbuilding Corp.
Staten Island Shipbuilding Corp.
Alex. Stephen & Sons, Ltd.
Sun Shipbuilding Co.
Todd Shipyards Corp.

Dynamos
(See Electric Plants)

Eccentric Rods
Pollak Steel Co.

Economizer, Fuel
(See Fuel Economizer)

Ejectors
Lunkenheimer Co.
Williams, Wm. E.

Electric Cranes
(See Electric Hoists)

Electric Cutouts
Crouse-Hinds Co.

Electric Drills and Grinders
Chicago Pneumatic Tool Co.
General Electric Co.
Williams, Wm. E.

Electric Driven Pumps
Fairbanks-Morse Co.
Ingersoll-Rand Co.

Electric Freight Trucks
(See Freight-Handling)

Electric Heaters
Cory, Chas., & Son, Inc.
General Electric Co.

Electric Hoists
Allan-Cunningham Co.
American Engineering Co.
Brown Hoisting Machinery Co.
Chicago Pneumatic Tool Co.
General Electric Co.
Hyde Windlass Co.
Lidgerwood Mfg. Co.
Maritime Engineering & Sales Corp.
Mead-Morrison Mfg. Co.
Mundy Hoisting Eng. Co., J. S.
Niles-Bement-Pond Co
Shepard Elec. Crane & Hoist Co.

Electric Lighting
Cory, Chas., & Son, Inc.
Crouse-Hinds Co.
General Electric Co.

Electric Meters
(See Meters, Electric)

Electric Plants
Consolidated Shipbuilding Corp.
Cory, Chas., & Son, Inc.
Fairbanks-Morse Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.

Electric Pumps
(See Electric Driven Pumps)

Electric Signals
Cory, Chas., & Son, Inc.

Electrical Tachometers
Cory, Chas., & Son, Inc.

Electric Welding
(See Welding, Electric)

Electrical Appliances, Installations, Fittings and Supplies
Cory, Chas., & Son, Inc.
Crouse-Hinds Co.
General Electric Co.
Williams, Wm. E.

Electrical Instruments
Cory, Chas., & Son, Inc.
General Electric Co.
Williams, Wm. E.

Electrical Wiring Devices
(Switches, Sockets, Etc.)
Cory, Chas., & Son, Inc.
Williams, Wm. E.

Elevators, Air and Hydraulic
(Also see Portable Elevators)

Engine Logs
Cory, Chas., & Son, Inc.
Williams, Wm. E.

Engine Oil
(See Lubricants)

Engine Packing
(See Packing)

Engine Room Counters
(See Revolution Counters)

Engine Room Telegraphs
Cory, Chas., & Son, Inc.

Engineers, Consulting—Marine
American Engineering Co.
Bogert, J. L.
Bonner, William T.
Cathcart, Wm. L.
Chapman & Fisher
Cox & Stevens
Crandall Engineering Co.
Donnelly, W. T.
Ferris, Theodore
Jansson & Gamon
Jacobs Co., J. L.
Haag, A. H.
Haight, Robert S.
Hansen, Max.
Harris, Leonard B.
Hough, Edward S.
Howden & Co., Ltd.
Leslie Stevens Co.
Lysholm, Henry, Inc.
Matthews, John B.
McClelland & Co., N. E., Ltd.
McKinlay, James
McNab Co., The
Nilson, Leonard J.
Peerless Eng. Co.
Reid & Co., John
Rimmer, A. C
Ross Heater & Mfg. Co.
Row & Davis, Engineers, Inc.
Schutte & Koerting Co.
Sharp, Geo. G.
Tams, Lemoine & Crane
Watts, J. Murray
Whittelsey & Whittelsey

Engineers, Electrical
Cory, Chas., & Son, Inc.

Engines for Auxiliaries
Alberger Pump & Condenser Co.
Consolidated Shipbuilding Corp.
De Laval Steam Turbine Co.
Fairbanks-Morse Co.
Hyde Windlass Co.
Kearfott Engineering Co.
Kerr Turbine Co.
McIntosh & Seymour Corp.
Morris Machine Works
Mundy Hoisting Engine Co., J. S.
New London Ship & Engine Co.
Westinghouse Electric & Mfg. Co.

Engines, Gasoline
(See Gasoline Engines)

Engines, Hoisting
(See Hoisting Engines)

Engines, Kerosene
(See Kerosene Engines)

Engines, Oil
(Also see Diesel Engines)
Busch-Sulzer Bros. Diesel Engine Co.
Chicago Pneumatic Tool Co.
Consolidated Shipbuilding Corp.
Hadfield-Penfield Steel Co.
Ingersoll-Rand Co.
Johnson Iron Works, Ltd.
Kearfott Engineering Co.
McIntosh & Seymour Corp.
New London Ship & Engine Co.
Standard Motor Construction Co.
Winton Engine Co.

Engines, Propelling
American Ship Building Co.
Bath Iron Works
Bethlehem Shipbuilding Corp.
Consolidated Shipbuilding Corp.
Fairbanks-Morse Co.
Hadfield-Penfield Steel Co.
Ingersoll-Rand Co.
Kearfott Engineering Co.
Los Angeles Shipbuilding & Dry Dock Co.
McIntosh & Seymour Corp.
Morris Machine Works
National Marine Engine Works
New London Ship & Engine Co.
Standard Motor Construction Co.
Staten Island Shipbuilding Co.
Trout Co., H. G.
Ward, Chas., Engineering Works
Winton Engine Co.
Worthington Pump & Machinery Corp.

Engines, Pumping
Alberger Pump & Condenser Co.
Davidson Co., M. T.
Fairbanks-Morse Co.
Griscom-Russell Co.
Kearfott Engineering Co.
Morris Machine Works
Row & Davis, Engineers, Inc.
Worthington Pump & Machinery Corp.

Engine-Room Clocks
(See Clocks)

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STEWARD

Life-saving Equipment

"Safety at Sea"

Gear engaged.

The Use of Our Boat Release Gear Guarantees

1—Simultaneous Release under full load
2—Simultaneous Release partially waterborne
3—Simultaneous Release under no load
4—One man unhooking by hand
5—One man hooking on by hand
6—No resistance to towing strain
7—No cast metal taking load
8—No safety pins required
9—GUARANTEES AGAINST *PREMATURE RELEASE*

Gear released.

STEWARD BOAT RELEASING GEAR

Patented—October 16, 1918.
December 17, 1918.

Simultaneous release of both ends of a life boat is important enough under fair weather conditions in quiet water, but under the stress of storm and forced embarkation in heavy seas, with perhaps headway on the ship, every life aboard is in jeopardy until the boat is safely released.

The Steward Gear will release when needed—never before. It cannot "unhook itself." It is stronger than any other part of the boat falls equipment, cannot get out of order, freeze up or jam.

Write for full details of tests

STEWARD DAVIT & EQUIPMENT CORPORATION

17 Battery Place, N. Y. **Factory: Hudson, N. Y.**

Seattle San Francisco London

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Engine-Room Supplies
(See Steam Specialties)

Engine Room Telegraphs
Williams, Wm. E.

Engrave Stem Thermometers
Taylor Instrument Companies

Evaporators
Alberger Pump & Condenser Co.
American Engineering Co.
Davidson Co., M. T.
Griscom-Russell Co.
Kearfott Engineering Co.
Row & Davis, Engineers, Inc.
Williams, Wm. E.

Exhaust Fans
(See Blowers)

Expanders
(See Boiler Flue Expanders and Pipe Expanding and Flanging Machines)

Expansion Joints
Alberger Pump & Condenser Co.
Crane Co., The
Griscom-Russell Co.
Lunkenheimer Co.
Powell Co., The William

Eye Bolts
Williams & Co., J. H.
Williams, Wm. E.

Fans
(See Blowers)

Feed Water Heaters
Griscom-Russell Co.
Kearfott Engineering Co.
Pratt & Cady Co., Inc.
Row & Davis, Engineers, Inc.
Williams, Wm. E.

Feed Water Regulators
Alberger Pump & Condenser Co.
Jerguson Gage & Valve Co.
Kearfott Engineering Co.
Pratt & Cady Co., Inc.

Fences
(See Wire Fences)

Ferrules—Condenser Tube
(See Condenser Tube Ferrules)

Files
Williams, Wm. E.

Filters—Marine Oil
Griscom-Russell Co.
Kearfott Engineering Co.
Row & Davis, Engineers, Inc.
Williams, Wm. E.

Fire Alarm Systems
Cory, Chas., & Son, Inc.
Kidde Co., Inc., Walter

Fire Department Supplies
Kidde Co., Inc., Walter

Fire Extinguishers
Kidde Co., Inc., Walter
Williams, Wm. E.

Fire Hose
(See Hose)

Fireproof Lumber
(See Lumber, Fireproof)

Fire Pumps
Morris Machine Works
Warren Steam Pump Co.

Flags and Pennants
Williams, Wm. E.

Flanged Boiler Heads
Lukens Steel Co.

Flanges
American Spiral Pipe Wks.
Crane Co., The
Lunkenheimer Co., The
Williams, Wm. E.

Flanging Machines
Chambersburg Engineering Co.
Niles-Bement-Pond Co.
Watson-Stillman Co.
Williams Co., J. H.

Floating Cranes
(Also see Cranes)
McMyler-Interstate Co.

Float Valves
Atlas Valve Co.
Crane Co., The
Lunkenheimer Co., The

Floating Dry Docks
(See Dry Docks)

Floor Plates
Crane Co., The

Flue Cleaners
(See Boiler Flue Cleaners)

Flue Cutters
(See Boiler Flue Cutters)

Flue Hole Punches and Dies
Cleveland Punch & Shear Works Co.

Fog Horns
Cory, Chas., & Son, Inc.
Williams, Wm. E.

Forced Draft
(See also Blowers)
De Laval Steam Turbine Co.
General Electric Co.
Kearfott Engineering Co.
Kerr Turbine Co.

Forges
Buffalo Forge Co.

Forgings, Bronze
Hyde Windlass Co.
Pollak Steel Co.

Forgings—Drop
(See Drop Forgings)

Forgings, Iron and Steel
(Also see Drop Forgings)
Charleston Dry Dock & Machine Co.
Pollak Steel Co.

Forgings—Monel Metal
International Nickel Co.

Freight-Handling Equipment
Brown Hoisting Machinery Co.
General Electric Co.
Lidgerwood Mfg. Co.
McMyler Interstate Co.
Mundy, J. S., Hoisting Engine Co.
Shepard Electric Crane & Hoist Co.

Fuel Economizer
Griscom-Russell Co.
Magnesia Association of America

Fuel Oil
Standard Oil Co. (New Jersey)
Sun Co.

Fuel Oil Burners
White Fuel Oil Engineering Corp.
Williams, Wm. E.

Fuel Oil Heaters
Griscom-Russell Co.
Williams, Wm. E.

Fuel Oil Pumps
Davidson Co., M. T.
Warren Steam Pump Co.

Furnace Bridge Walls
Wagner Furnace Bridge Wall Co., Inc.

Furnace Cement
Waycott, A. K.

Furnace Fronts
Continental Iron Works, The

Furnaces
(Also see Oil Furnaces)
American Spiral Pipe Wks.
Continental Iron Works, The

Fuses
Crouse-Hinds Co.

Fusible Plugs
Crane Co., The
Griscom-Russell Co.
Lunkenheimer Co., the
Williams, Wm. E.

Galley Pumps
Mott Iron Works, J. L.
Sands & Son, Co., A. B.
Williams, Wm. E.

Galleys
(See Ranges)

Galvanized Material
Sands, A. B., & Son Co.
Tiebout, W. & J.
Williams, Wm. E.

Gantry Cranes
Niles-Bement-Pond Co.

Gas Compressors
Norwalk Iron Works

Gas Engine Specialties
Crane Co., The
Lunkenheimer Co., The
Powell Co., The William
Pratt & Cady Co., Inc.

Gas Thermometers
Schaeffer & Budenburg Mfg. Co.

Gaskets
(Also see Packing)
Crane Co., The
Goetze Gasket & Packing Co.
Griscom-Russell Co.
Williams, Wm. E.

Gasoline Engines
Consolidated Shipbuilding Corp.
Fairbanks-Morse Co.
Standard Motor Construction Co.
Winton Engine Co.

Gasoline Pumps
Sands & Son Co., A. B.

Gate Valves — Brass and Iron
Crane Co., The
Lunkenheimer Co., The
Powell Co., The William
Pratt & Cady, Inc.
Williams, Wm. E.

Gate Valves for Tank Steamers
Pratt & Cady Co., Inc.
Williams, Wm. E.

Gauge Boards
American Steam Gage & Valve Mfg. Co.
Schaeffer & Budenburg Mfg. Co.

Gauge Cocks
American Steam Gage & Valve Mfg. Co.
Jerguson Gage & Valve Co.
Lunkenheimer Co., The
Powell Co., The William
Pratt & Cady Co., The
Sands & Son Co., A. B.
Williams, Wm. E.

Gauge Glasses
Crane Co, The
Jerguson Gage & Valve Co.
Lunkenheimer Co., The
Powell Co., The William
Schaeffer & Budenburg Mfg. Co.
Williams, Wm. E.

Gauges
(See Draft Gauges; also Tank Gauges)

Gauge Testers
American Steam Gage & Valve Mfg. Co.
Schaeffer & Budenburg Mfg. Co.

Gauges—Manufacturers'
(Also see Steam Gauges)

Gears
De Laval Steam Turbine Co.
Falk Corp., The
Kerr Turbine Co.
Westinghouse Electric & Mfg. Co.

General Welding and Cutting Equipment
(See Welding & Cutting Apparatus and Supplies)

Generating Sets
Engberg's Electric & Mechanical Wks.
Fairbanks-Morse Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
Williams, Wm. E.

Generators
Crouse-Hinds Co.
Engberg's Electric & Mechanical Wks.
Fairbanks-Morse Co.
General Electric Co.
Williams, Wm. E.

Globe Valves—Brass and Iron
Crane Co., The
Lunkenheimer Co., The
Powell Co., The William
Pratt & Cady Co., Inc.
Williams, Wm. E.

Glue—Marine
Williams, Wm. E.

Governor Valves
Atlas Valve Co.
Crane Co., The
Lunkenheimer Co., The
Williams, Wm. E.

Governors
Atlas Valve Co.
Cory, Chas., & Sons, Inc.

Grease
(See Lubricants)

Grease Cups
Crane Co., The
Lunkenheimer Co., The
Powell Co., The William
Sun Co.

Grease Extractors
American Steam Gage & Valve Mfg. Co.
Griscom-Russell Co.
Row & Davis, Engineers, Inc.
Williams, Wm. E.

Grinders—Electric and Pneumatic
Chicago Pneumatic Tool Co.

Guillotine Shears
Cleveland Punch & Shear Works Co.
Niles-Bement-Pond Co.

Guy Anchors
Crouse-Hinds Co.

Gypseys
American Engineering Co.
Hyde Windlass Co.
Lidgerwood Mfg. Co.
Mundy Hoisting Engine Co., J. S.

Gyro-Compassess
Sperry Gyroscope Co.

Gyro-Stabilizers
Sperry Gyroscope Co.

Hammers
Bradley & Son, C. C.

Hammers, Pneumatic
(See Pneumatic Tools)

Hammers, Steam
Chambersburg Eng. Wks.
Niles-Bement-Pond Co.

Hammocks
(See Couch Hammocks)

Handles (Crank, Balance, Machine)
Williams & Co., J. H.

Hardware
(See Marine Hardware)

Hardwood
(See Lumber)

Hawser Reels
Williams, Wm. E.

Hawsers—Manila
(Also see Rope and Wire Rope)
American Mfg. Co.
Columbian Rope Co.
Plymouth Cordage Co.
Whitlock Cordage Co.
Williams, Wm. E.

Heat Insulation
(Also see Non-Conducting Coverings)
Magnesia Association of America

Heaters
(Bath, Lavatory, Shower)
Alberger Pump & Condenser Co.
Griscom-Russell Co.
Kearfott Engineering Co.
Mott Iron Works, J. L.
Pratt & Cady Co., The
Sands & Son Co., A. B.
Williams, Wm. E.

Hemp
(See Twine)

Hoist Hooks
Williams, J. H., & Co.
Williams, Wm. E.

Hoisting Engines
Allan-Cunningham Co.
American Engineering Co.
Fairbanks-Morse Co.
Flory Manufacuring Co., S.
Hadfield-Penfield Steel Co.
Hyde Windlass Co.
Lidgerwood Mfg. Co.
Maritime Engineering & Sales Corp.
Mundy Hoisting Engine Co., J. S.

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BUNKER FUEL OIL

This Company is in a position to offer to the Shipping interests world-wide facilities for bunkering with "Standard" Fuel Oil. This service makes possible the decided economies resulting from the use of "Standard" Fuel Oil.

Ports at which deliveries can be made through arrangements with the Standard Oil Company (New Jersey), 26 Broadway, N. Y.

UNITED STATES

Atlantic and Gulf Ports

*New York, *Norfolk, Boston, *Charleston, *Philadelphia, *New Orleans, *Baltimore, *Baton Rouge

Pacific Coast Ports

Tacoma, *Richmond, *Seattle, Eureka, Ketchikan, *San Francisco, Aberdeen, *San Pedro, *Point Wells, San Diego, Portland, *Honolulu, Astoria

CANADA

*Halifax, *Vancouver, *Montreal, Prince Rupert, *Quebec

WEST INDIES

Havana, Bermuda, Cienfuegos, Curacao, Nuevitas, St. Thomas, San Juan

SOUTH AMERICA

Rio de Janeiro, *Campana, Montevideo, *Buenos Aires, Valparaiso, *Talara

UNITED KINGDOM

*Purfleet, *Liverpool, *Manchester, *Brixham, *Southampton, Hull, *Newcastle-On-Tyne

GERMANY

Hamburg, Nordenham

AFRICA

Bizerta

MEXICO

Tampico

PANAMA CANAL

Cristobal, *Balboa

TURKEY

Constantinople

GREECE

Piraeus

CHINA

Hong Kong, Shanghai

*Diesel oil also available

Arrangements will shortly be completed to cover ports in addition to those listed, as follows:

Fort William, Ont.
Hamilton, Ont.
Sarnia, Ont.
St. John, N. B.
Victoria, B. C.
Toronto, Ont.
Antilla, Cuba
Matanzas, Cuba
Antofagasta, Chile
Iquique, Chile
Pisagua, Chile
Tocopilla, Chile
Taltal, Chile
Paita, Peru
Callao, Peru
Bahia Blanca, Arg.
Ponta Delgada, Azores
Bergen, Norway
Christiania, Norway
Vallo, Norway
Gothenburg, Sweden
Helsingfors, Finland
Aalborg, Denmark
Copenhagen, Denmark
Nyborg, Denmark
Avonmouth, U. K.
Birkenhead, U. K.
Cardiff, U. K.
Newcastle, U. K.
Sunderland, U. K.
Rotterdam, Holland
Amsterdam, Holland
Antwerp, Belgium
Rouen, France
Havre, France
Marseilles, France
Dunkirk, France
La Pallice, France
Genoa, Italy
Monopoli, Italy
Portici, Italy
Savona, Italy
Venice, Italy
Port Said, Egypt
Alexandria, Egypt
Colombo, Ceylon
Singapore, S. S.
Itosaki, Japan
Nagasaki, Japan
Sydney, Australia
Wellington, N. Z.
Durban, S. A.

STANDARD OIL COMPANY (New Jersey)

26 Broadway, New York

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Hoisting and Transmission Rope
(See Rope)

Hoists, Chain
(See Chain Hoists)

Hoists, Electric
(See Electric Hoists)

Holders-On
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.

Hollow Boring
Pollak Steel Co.

Horizontal Punches
Cleveland Punch & Shear Works Co.

Hose
(Also see Air Hose)
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.

Hose Coupling
Chicago Pneumatic Tool Co.
Cleveland Pneumatic Tool Co.
Ingersoll-Rand Co.

Humidifiers
Griscom-Russell Co.

Hydraulic Fittings
Crane Co., The
Lunkenheimer Co.
Powell Co., The William
Watson-Stillman Co.

Hydraulic Presses and Other Machinery
Chambersburg Engineering Co.
Niles-Bement-Pond Co.
Warren Steam Pump Co.
Watson-Stillman Co.

Hydraulagraph
American Steam Gage & Valve Mfg. Co.

Hydrometers
Taylor Instrument Companies

Hygrodeiks
Taylor Instrument Companies

Hygrometers
Taylor Instrument Companies

Hygrostats
Atlas Valve Co.

Ice Machines
(See Refrigerating Machinery)

Indicator Connections
Lunkenheimer Co.
Powell Co., The William

Indicators
(Steam and Gas Engine)
American Steam Gage & Valve Mfg. Co.
Ashton Valve Co.
Cory, Chas., & Son, Inc.
Lunkenheimer Co., The
Manning, Maxwell & Moore, Inc.
Powell Co., The William
Williams, Wm. E.

Indicating & Recording Thermometers
Schaeffer & Budenburg Mfg. Co.

Taylor Instrument Companies

Inspectors Outfits
American Steam Gage & Valve Mfg. Co.

Injectors
Lunkenheimer Co., The
Powell Co., The William
Williams, Wm. E.

Interlocking Rubber Tiling
Griscom-Russelll Co.

Iron Pipe
(See Pipe)

Jacks
(Pneumatic)
Gracey, R., & Sons Co.
Watson-Stillman Co.

Jacks, Hydraulic
Watson-Stillman Co.

Jacks—Steamboat Ratchet
(Pulling)
Gracey, R., & Sons Co.
Griscom-Russell Co.

Journal Bearings
(See Thrust Bearings)

Jute
American Mfg. Co.
Columbian Rope Co.

Kerosene Engines
Consolidated Shipbuilding Corp.
Fairbanks-Morse Co.
Standard Motor Construction Co.

Knife Switches
Crouse-Hinds Co.

Ladder Treads
Williams, Wm. E.

Lamps, Signals and Fixtures
Cory, Chas., & Son, Inc.
General Electric Co.
Sands, A. B. & Son Co.
Westinghouse Electric & Mfg. Co.
Williams, Wm. E.

Lathe Dogs
Williams & Co., J. H.
Williams, Wm. E.

Lathes, Crank Shaft, Engine and Turret
Niles-Bement-Pond Co.

Launches and Yachts
(See shipbuilders)

Launching Grease
Sun Co.

Lavatories
(Stateroom)
Crane Co., The
Mott Iron Works, J. L.
Sands, A. B., & Son Co.
Williams, Wm. E.

Lavatory and Bath Heaters
Griscom-Russell Co.
Sands, A. B., & Son Co.
Williams, Wm. E.

Lead Pencils
(See Drawing Pencils)

Leather Belting
Williams, Wm. E.

Life Boats and Rafts
Lane Lifeboat Co., C. M.
Steward Davit & Equip. Corp.
Williams, Wm. E.

Life Preservers
Williams, Wm. E.

Life-Saving Devices
Steward Davit & Equip. Corp.

Lighting Sets
(See Electric Plants)

Lights, Electric
(See Electric Lights)

Lines—Towing, Buoy
(See Rope)

Loading and Unloading Equipment
(See Freight-Handling Equipment)

Locks and Latches
(See Ship Locks and Latches)

Locomotive Cranes
(See Cranes)

Lowering Control
American Balsa Co.

Log Registers
Steward Davit & Equip. Corp.

Lubricants
Standard Oil Co. (New Jersey)
Sun Co.
Wadsworth, Howland & Co.

Lubricating Oil Pumps
Warren Steam Pump Co.

Lubricators
Crane Co.
Griscom-Russell Co.
Lunkenheimer Co.
Powell Co., The William
Sun Co.
Williams Valve Co., D. T.

Lumber
Long-Bell Lumber Co.

Machine Tools
Cleveland Pneumatic Tool Co.
Cleveland Punch & Shear Works Co.
Niles-Bement-Pond Co.

Machinists' Tools
Williams & Co., J. H.

Manganese Bronze Castings
American Manganese Bronze Co.
Columbian Bronze Corp.
Griscom-Russell Co.
Hyde Windlass Co.
Lunkenheimer Co.
Powell Co., The William

Magnesia Goods and Materials
Magnesia Association of America

Malleable and Steel Castings
Crane Co.

Manila and Sisal Rope
(See Rope)

Manifolds
Cleveland Pneumatic Tool Co.

Manufacturing Plants
(See Builders)

Marine Boiler Heads
(See Boiler Heads)

Marine Cableways
Lidgerwood Mfg. Co.

Marine Coatings
(See Anti-Rust Coastings)

Marine Decking
(See Decking)

Marine Electrical Equipment
(See Electrical Fittings and Supplies)

Marine Engines
(See Engines, Propelling)

Marine Engineers
(See Engineers, Consulting)

Marine Forgings
(See Forgings)

Marine Glue
Williams, Wm. E.

Marine Hardware
Consolidated Shipbuilding Corp.
Sands & Son Co., A. B.
Tiebout, W. & J.
Williams, Wm. E.

Marine Heaters
(See Heaters)

Marine Inter-Communication Equipment
Cory, Chas., & Son, Inc.

Marine Lighting Sets
(See Electric Plants)
Williams, Wm. E.

Marine Paint
(Also see Paint)
Briggs Bituminous Composition Co., Inc.
Federal Composition & Paint Co., Inc.
Wadsworth, Howland & Co.
Wailes Dove-Hermiston Corp.
Williams, Wm. E.

Marine Plumbing
Crane Co., The
Mott Iron Works, J. L.
Sands & Son Co., A. B.

Marine Railway Builders
Crandall Engineering Co.

Marine Railways
(See Dry Docks)

Marine Ranges
(See Ranges)

Marine Refrigeration
(See Refrigerating Machinery)

Marine Repairs
(See Shipbuilders)

Marine Securities
Marine Corporation

Marine Shafting
(See Shafting)

Marine Specialties
(See Steam Specialties)

Marine Superheaters
Babcock & Wilcox Co.
Heine Safety Boiler Co.
Power Specialty Co.
Superheating Co., The

Marine Supplies
Tiebout, W. & J.
Williams, Wm. E.

Marine Wiring Devices
Cory, Chas., & Son, Inc.
General Electric Co.

Masts, Tubular Steel
National Tube Co.

Mattresses
Southern-Rome Co.

Mechanical Telegraphs
Cory, Chas., & Son, Co.
Radio Corporation of America
Williams, Wm. E.

Mercury Pressure Gauges
American Steam Gage & Valve Mfg. Co.

Metallic Packing
(Also see Packing)
Goetze Gasket & Packing Co.
U. S. Metallic Packing Co.

Meters, Electric
General Electric Co.

Milling Machines
Niles-Bement-Pond Co.

Mineral Wool
(See Non-Conducting Covering)

Monel Metal
International Nickel Co.

Mooring Engines
American Engineering Co.
Flory Mfg. Co., S.
Hyde Windlass Co.
Lidgerwood Mfg. Co.

Motor Boats
(See Launches and Yachts)

Motor Boat Supplies
Tiebout, W. & J.
Williams, Wm. E.

Motors, Electric
General Electric Co.

Motors, Gasoline
(See Gasoline Engines)

Multiple Drills
Niles-Bement-Pond Co.

Multiple Punches
Cleveland Punch & Shear Works
Niles-Bement-Pond Co.

Multiwhirl Oil Coolers
Griscom-Russell Co.

Nautical Instruments
McNab Co., The
Sperry Gyroscope Co.
Williams, Wm. E.

Naval Architects
Bogert, John L.
Cathcart, Wm. L.
Chapman & Fisher
Cox & Stevens
Donnelly, William T.
Ferris, Theodore
Jansson & Gamon
Jacobs Co., J. L.
Haag, A. H.
Haight, Robert S.
Hansen, Max
Harris, Leonard B.
Hough, Edward S.
Lysholm, Henry, Inc.
McClelland, N. E., & Co., Ltd.
McKinlay, James
Matthews, John B.
Nilson, Leonard J.
Peerless Eng. Co.
Rimmer, A. C.
Sharp, Geo. G.
Tams, Lemoine & Crane
Watts, J. Murray
Whittelsey & Whittelsey

Needle Valves
(See Valves)

Nipples
Crane Co., The
Lunkenheimer Co., The

Non-Conducting Coverings
Magnesia Association of America
Thorsen, P. S., & Co., Inc.

Nozzles
(See Hose Nozzles)

Nuts
(See Bolts and Nuts)
Russell, Burdsall & Ward Bolt and Nut Co.
Williams, Wm. E.

Oakum
American Mfg. Co.

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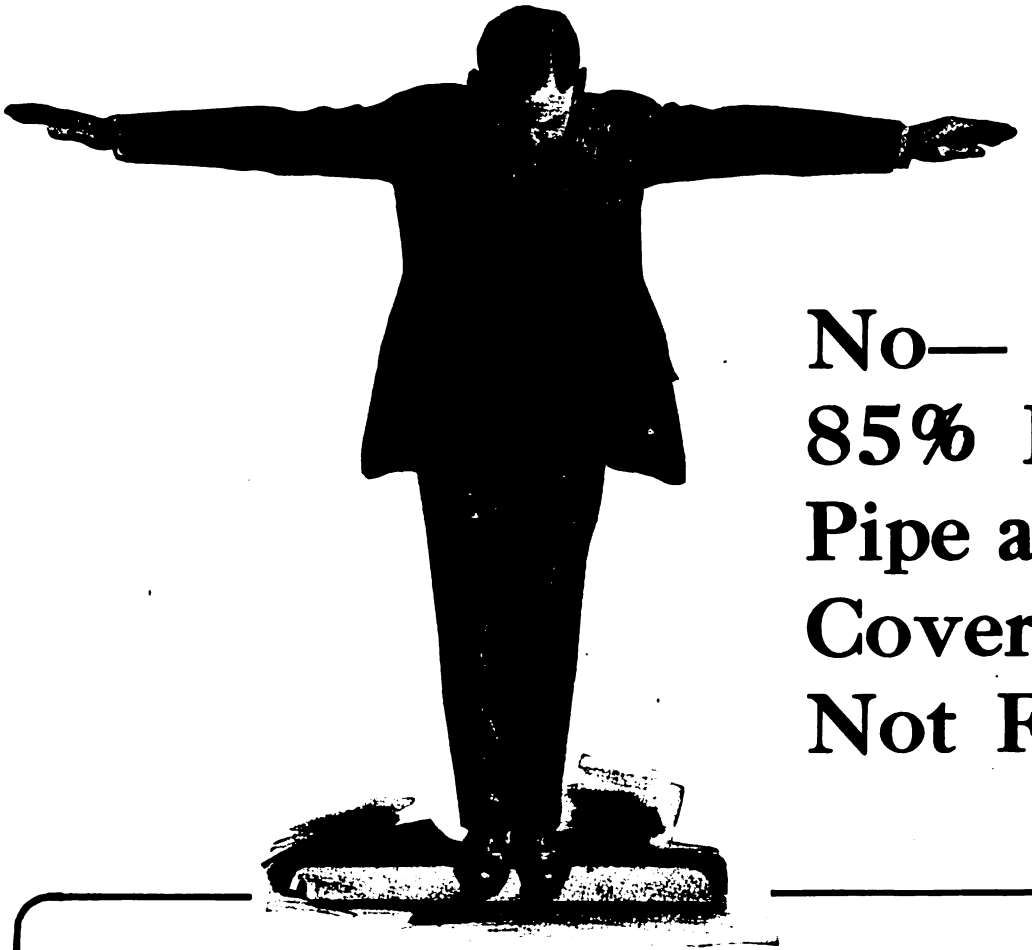

No— 85% Magnesia Pipe and Boiler Covering Is Not Fragile

Nearly everybody jumps to the conclusion that an article of light weight has little strength. The thoughts are naturally associated.

But the truth is that 85% Magnesia combines light weight and strength.

The illustration above, sketched from a photograph, shows a heavy man standing on a half section of 85% Magnesia Pipe Covering. Had you any idea that 85% Magnesia possessed such strength?—Do you doubt it? Then try it yourself.

Pipe coverings need not hang in shreds on the pipe to be considered as having failed. **The most frequent failure is sagging.** If the covering sags only ¼ of an inch it has failed.

As weight induces sagging, it is extremely important that a pipe covering be as light as possible. The rigidity of 85% Magnesia holds each section snugly to the pipe.

85% Magnesia combines light weight with great strength; one feature is not sacrificed for the other. This is one reason—only one—why 85% Magnesia is the **Universal** Coal Saver.

Other vital facts with respect to insulation are given in our revised book "Defend Your Steam," furnished free to every responsible person.

MAGNESIA ASSOCIATION of AMERICA

753 BULLETIN BUILDING **PHILADELPHIA, PENNSYLVANIA**

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Alvin M. Ehret, Ehret Magnesia Mfg. Co.....Valley Forge, Pa.
J. R. Swift, The Franklin Mfg. Co.....Franklin, Pa.
R. V. Mattison, Jr., Keasbey & Mattison Co.....Ambler, Pa.

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Stratford Oakum Co., George
Wall Rope Works, Inc.

Oil
(See Lubricants)

Oil Burners, Fuel
(See Fuel Oil Burners)

Oil Burning Equipment
Bethlehem Shipbldg. Corp.
Pommer, Walter C.
White Fuel Oil Engineering Corp.
Williams, Wm. E.

Oil Coolers
Griscom-Russell Co.

Oil Cups
Crane Co.
Griscom-Russell Co.
Lunkenheimer Co., The
Powell Co., The William
Sun Co.
Williams, Wm. E.

Oil Engines
(See Engines, Oil)

Oil Fuel
Standard Oil Co. (New Jersey)
Sun Co.

Oil Fuel Apparatus
(See Oil-Burning Equipment)

Oil Gauges
Crane Co.
Lunkenheimer Co., The
Powell Co., The William
Williams, Wm. E.

Oil Heaters and Coolers
Griscom-Russell Co.
Row & Davis, Engineers, Inc.

Oil Pumps
Davidson, M. T., Co.
Ingersoll-Rand Co.
Lunkenheimer Co., The
Powell Co., The William
National Transit Pump & Machine Co.
Sands, A. B., & Son, Co.
Warren Steam Pump Wks.

Oil Purifiers
De Laval Separator Co.
Griscom-Russell Co.

Oil Tankers
(See Tank Ships)

Oiling Systems
(Also see Lubricants)
Lunkenheimer Co., The
Powell Co., The William

Ore-Handling Machinery
(See Coal-Handling Machinery)

Oxy-Acetylene Welding and Cutting
Prest-O-Lite Co., Inc.
Vulcan Iron Works, Inc.

Oxygen
Linde Air Products Co.
Prest-O-Lite Co.

Packing
(Also see Metallic Packing and Ammonia Packing)
Goetz Packing Co.
United States Metallic Packing Co.
Williams, Wm. E.

Packing, Asbestos
Crane Co.
Williams, Wm. E.

Packings, Leather
Watson-Stillman Co.

Paint
Federal Composition & Paint Co.
Marine Decking & Supply Co.
Wadsworth, Howland & Co.
Walles Dove-Hermiston Corp.
Williams, Wm. E.

Paint Spraying Equipment
(See Pneumatic Paint Spraying Equipment)

Panel Boards
(Marine)
Cory, Chas., & Son, Co.
Crouse-Hinds Co.

Panelling
(Marine Fireproof)
Marine Decking & Supply Co.

Pantographs
American Steam Gage & Valve Mfg. Co.

Partitions
(Marine Fireproof)
Marine Decking & Supply Co.

Pencils
(See Drawing Pencils)

Phosphor Bronze Castings
American Manganese Bronze Co.
Columbian Bronz Corp.
Griscom-Russell Co.
Hyde Windlass Co.
Lunkenheimer Co., The

Pile Drivers
Flory, S., Mfg. Co.
Lidgerwood Mfg. Co.
McMyler-Interstate Co.
Mundy Hoisting Eng. Co., J. S.

Pipe
National Tube Co.
Watson-Stillman Co.
Williams, Wm. E.

Pipe Bending Machines
Buffalo Forge Co.
Watson-Stillman Co.

Pipe Covering
(See Non-Conducting Covering)

Pipe Cutting and Threading Machine
Niles-Bement-Pond Co.
Williams, Wm. E.

Pipe Elbows
Atlas Valve Co.

Pipe Expanding and Flanging Machines
Watson-Stillman Co.

Pipe Flanges
(See Flanges)

Pipe Fittings
Atlas Valve Co.

Pipe Unions
Atlas Valve Co.
Crane Co.
Lunkenheimer Co., The
Powell Co., The William
Williams, Wm. E.

Pipe Wrenches
Williams & Co., J. H.
Williams, Wm. E.

Piston Rings
(See Packings)

Piston Rods
Pollak Steel Co.

Planers
(Metal Working)
Cleveland Pneumatic Tool Co.
Niles-Bement-Pond Co.

Planimeters
American Steam Gage & Valve Mfg. Co.
Williams, Wm. E.

Plate-Bending Rolls
(See Rolls, Bending & Straightening)

Plate Castors
(See Castors)

Plate Shears
The Quickwork Co.

Plates
(See Steel Plates and Shapes)

Plugs and Receptacles—Watertight
Cory, Chas., & Son, Inc.
Williams, Wm. E.

Plumbago
(Also see Graphite)
Williams, Wm. E.

Plumbers' Tools
Williams & Co., J. H.
Williams, Wm. E.

Plumbing
(See Marine Plumbing)

Pneumatic Drills
(See Pneumatic Tools)

Pneumatic Hammers
(See Pneumatic Tools)

Pneumatic Hose
(See Air Hose)
Sands, A. B., & Son, Co.

Pneumatic Riveters
Ingersoll-Rand Co.
Keller Pneumatic Tool Co.
Watson-Stillman Co.

Pneumatic Separators
Griscom-Russell Co.

Pneumatic Tools
Cleveland Pneumatic Tool Co.
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.

Pop Safety Valves
American Steam Gage & Valve Mfg. Co.
Ashton Valve Co.
Crane Co.
Lunkenheimer Co., The
Powell Co., The William
Williams, Wm. E.

Poppet Valves
(See Valves)

Portable Drills
General Electric Co.

Portable Elevators
(For Handling Bulk Materials)

Port Lights
(See Air Ports)

Power Hammers
Chambersburg Engineering Co.
The Quickwork Co.

Power Punches
Watson-Stillman Co.

Power Punches and Shears
Buffalo Forge Co.
Cleveland Punch & Shear Works Co.
Niles-Bement-Pond Co.

Power Riveters
Cleveland Punch & Shear Works Co.
Ingersoll-Rand Co.
Niles-Bement-Pond Co.
Watson-Stillman Co.

Power Shears
Buffalo Forge Co.
Cleveland Punch & Shear Works Co.
Niles-Bement-Pond Co.
Quickwork Co.

Presses
(See Hydraulic Presses)

Pressure Gauges
Schaeffer & Budenburg Mfg. Co.

Pressure Regulators
Ashton Valve Co.
Atlas Valve Co.
Crane Co.
Lunkenheimer Co., The
Powell Co., The William

Professional Cards
Ansell & Bailey
Bogert, John L.
Bonner, William T.
Cathcart, Wm. L.
Chapman & Fisher
Ferris, Theodore
Jacobs Co., J. L.
Jansson & Gamon
Haag, A. H.
Haight, Robert S
Hough, Edward S
Lysholm, Henry, Inc.
Matthews, John B.
McClelland, N. E., & Co., Ltd.
Nilson, Leonard J.
Pommer, Walter E.
Tams, Lemoine & Crane
Peerless Eng. Co.
Sharp, Geo. G.
Watts, J. Murray
Whittelsey & Whittelsey

Projectors
(See Searchlights)

Propeller Shafts
(See Shafting)

Propeller Wheels
American Manganese Bronze Co.
Bethlehem Shipbldg. Corp.
Columbian Bronze Corp.
Donnelly, Wm. T.
Hyde Windlass Co.
Kearfott Engineering Co.
Trout Co., H. G.

Pump Governors
Atlas Valve Co.
Williams, Wm. E.

Pumping Machinery
(See Engines, Pumping)

Pumps
Alberger Pump & Condenser Co.
Bethlehem Shipbldg. Corp.
Chambersburg Engineering Co.
Davidson Co., M. T.
De Laval Steam Turbine Co.
Fairbanks-Morse Co.
Griscom-Russell Co.
Hyde Windlass Co.
Ingersoll-Rand Co.
Kerr Turbine Co.
Morris Machine Works
National Transit Pump & Machine Co.
Row & Davis, Engineers, Inc.
Sands & Son, Co., A. B.
Warren Steam Pump Co.
Watson-Stillman Co.
Wheeler Condenser & Eng. Co.
Wheeler Mfg. Co., C. H.
Westinghouse Electric & Mfg. Co.
Williams, Wm. E.

Punching Machines
(See Power Punches)

Punches and Dies
Cleveland Punch & Shear Works Co.

Punches, Shears and Bar Cutters Combined
Buffalo Forge Co.

Punching and Shearing Machines
(See Power Machines and Shears)

Punch Tables
(See Spacing Tables)

Push Buttons
Cory, Chas., & Son, Inc.

Pyrometers
Superheater Co., The
Taylor Instrument Companies
Williams, Wm. E.

Quadrant Davits
(See Davits)

Radial Drills
Cleveland Punch & Shear Works Co.
Niles-Bement-Pond Co.

Radio Apparatus
Radio Corporation of America

Rafts
(See Lifeboats and Rafts)

Railway Dry Docks
Crandall Engineering Co.

Ranges
Sands, A. B. & Sons Co.

Ratchet Jacks
(Pulling and Pushing)
Gracey & Sons Co., R.

Reamers
Brubaker & Bros., W. L.
Chicago Pneumatic Tool Co.

Reclaiming Systems For Oil
De Laval Separator Co.

Recording Instruments
(Also see Steam Gauges)
Taylor Instrument Companies

Recording Gauges
Schaeffer & Budenburg Mfg. Co.

Reducing Gears
(See Gears)

Reducing Valves
Atlas Valve Co.
Crane Co.
Lunkenheimer Co., The
Williams, Wm. E.

Reflex Water Gauges
Jerguson Gage & Valve Co.

Refrigerating Machinery
Brunswick Refrigerating Co.
Frick Co.
Norwalk Iron Works
Westinghouse Electric & Mfg. Co.
York Mfg. Co.

Regulating Valves
Atlas Valve Co.
Crane Co.
Lunkenheimer Co.
Powell Co., The William
Sands, A. B., & Son, Co.
Williams, Wm. E.

Releasing Gear
Steward Davit & Equip. Corp.

Relief Valves
Atlas Valve Co.
American Steam Gauge & Valve Mfg. Co.
Ashton Valve Co.
Crane Co.
Lunkenheimer Co., The
Powell Co., The William
Watson-Stillman Co.
Williams, Wm. E.

Repairs, Marine
Bethlehem Shipbldg. Corp.

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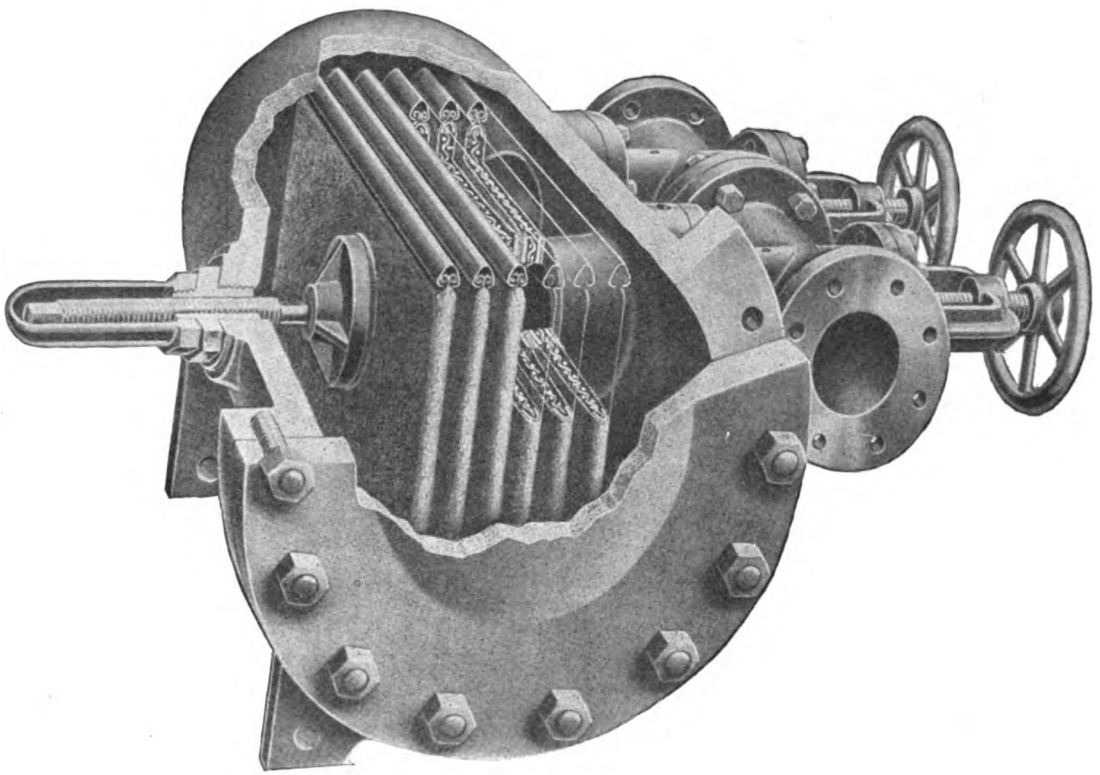

KEEPS OIL OUT

of the Boiler

Send for Bulletin No. 615

The Griscom-Russell Co.

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Springfield	Detroit	New Orleans	San Francisco	Milwaukee

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Revolution Counters
Ashton Valve Co.
Cory, Chas., & Son, Inc.
Schaeffer & Budenburg Mfg. Co.
Williams, Wm. E.

Rheostats
General Electric Co.

Rigging
(See Rope; also Wire Rope)

River Boats
(See Shipbuilders)

Rivets
Carlin, Anthony
Champion Rivet Co.
Severance Mfg. Co., S.

Rivet Busters, Rivet Clamps and Rivet Tongs
Chicago Pneumatic Tool Co.
Ingersoll-Rand Co.

Riveters
(See Pneumatic Riveters and Power Riveters)

Riveting Machines, Hydraulic and Steam Power
(Also see Power Riveters and Pneumatic Riveters)
Chambersburg Engineering Co.
Chicago Pneumatic Tool Co.
Niles-Bement-Pond Co.

Rod and Yoke Ends
Williams, Wm. E.

Rods (Brass)
Chase Metal Works
Chase Rolling Mill Co.
Williams, Wm. E.

Rods (Steel)
Pollak Steel Co.

Rods, Welding
(See Welding Rods)

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Williams, Wm. E.

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Bantam Ball Bearing Co.

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Cleveland Punch & Shear Works Co.
Niles-Bement-Pond Co.
Pollak Steel Co.

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(Also see Wire Rope)
American Mfg. Co.
Columbian Rope Co.
Plymouth Cordage Co.
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Whitlock Cordage Co.

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Columbian Rope Co.
Wall Rope Works, Inc.
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Rotary Blowers
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Rotary Pumps
Sands, A. B., & Son, Co.

Rotary Shears
Quickwork Co., The

Rowboats
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Rubber Goods
(Also see Packing; also see Interlocking Rubber Tiling)
Williams, Wm. E.

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Safety Devices
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Davidson Co., M. T.
Morris Machine Works
Sands, A. B., & Son, Co.
Warren Steam Pump Co.

Scales—All Kinds
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Screw Punches
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Steward Davit & Equip. Corp.

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National Tube Co.

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General Electric Co.

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Shafting
(Seamless Steel)
Kearfott Engineering Co.
National Tube Co.
Pollak Steel Co.
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Shafting— Bronze
American Manganese Bronze Co.
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Chase Rolling Mill Co.

Shafts—Propeller
Pollak Steel Co.

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(Rolled Steel)
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Shipbuilders and Dry Dock Companies
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Consolidated Shipbuilding Corp.
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Merchant Shipbuilding Corp.
New London Ship & Engine Co.
New York Shipbuilding Corp.
Standard Motor Construction Co.
Staten Island Shipbuilding Co.
Alex. Stephen & Sons, Ltd.
Sun Shipbuilding Co.
Todd Shipyards Corp.
Vulcan Iron Works, Inc.
Ward, Chas., Engineering Works

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Cox & Stevens
Ferris, Theodore
Haight, Edward S.
Maritime Engineering & Sales Corp.
McClelland, N. E., & Co., Inc.
Pommer, Walter E.
Watts, J. Murray

Ship Chandlers
Williams, Wm. E.

Ship Clocks
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Ship Compositions
Wailes Dove-Hermiston Corp.

Ship Cowls
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Ship Fittings, Supplies and Equipment
Griscom-Russell Co.
Williams, Wm. E.

Ship Glue
(See Marine Glue)

Ship Locks and Lathes
Tiebout, W. & J.
Williams, Wm. E.

Ship Plates
(See Steel Plates; also Zinc Ship and Boiler Plates)

Ship Repairs
(See Dry Docks and Marine Railways)

Ship Rivets
(See Rivets)

Ship Stores
(See Chandlery Stores)

Ship Stabilizers
Sperry Gyroscope Co.

Ship Telegraphs
Cory, Chas., & Son, Inc.

Ship Telephones
Cory, Chas., & Son, Inc.

Ship Timbers
(See Lumber)

Shipyards
(See Shipbuilders)

Shipyard Cranes
(See Cranes)

Shipyard Whirlers
(See Cranes)

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(See Cranes)

Signalling Apparatus
Cory, Chas., & Son, Inc.

Sirens
American Steam Gage & Valve Mfg. Co.

Skylight Lifting Gear
Tiebout, W. & J.

Sleeves
(See Sockets and Sleeves)

Slitting Machines
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Niles-Bement-Pond Co.

Small Tools
(See Bench Tools)

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Smooth-On Mfg. Co.

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Williams, Wm. E.

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Pollak Steel Co.
Williams, Wm. E.

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Southern Pine
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Sands, A. B., & Son
Williams, Wm. E.

Speed Indicators for Ships
Cory, Chas., & Son, Inc.

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The Quickwork Co.

Spikes
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Sprocket Rims
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Stabilizers
Sperry Gyroscope Co.

Staybolt Taps
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Steam Calorimeters
Schaeffer & Budenburg Mfg. Co.

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Steam Gauges
American Steam Gage & Valve Mfg. Co.
Ashton Valve Co.
Crane Co., The
Lunkenheimer Co.
Powell Co., The William
Taylor Instrument Companies
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Chambersburg Engineering Co.
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(See Non-Conducting Coverings)

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(See Pumps)

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Crane Co.
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(See Pumps, Valves, Gauges, Lubricators, Etc.)

Steam Superheaters
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(See Steel Plates and Shapes)

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(See Shafting)

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American Engineering Co.
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Hyde Windlass Co.
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National Marine Engine Works

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American Engineering Co.
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(See Valves)

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(See Ranges)

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Bath Iron Works
Merchant Shipbuilding Corp.

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Warren Steam Pump Co.

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Continental Iron Works, The
National Tube Co.

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Continental Iron Works, The

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Whitlock Cordage Co.
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Powell Co., The William

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(See Ball Bearings and Roller Bearings)

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(See Interlocking Rubber Tiling)

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(See Machine Tools)

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(See Rope and Wire Rope)

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(See Rope)

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(See Cranes)

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McMyler Interstate Co.

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(Copper, Brass and Bronze)
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Chase Rolling Mill Co.
International Nickel Co.
Williams, Wm. E.

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(See Boiler Flue Cleaners)

Tube Expanders
(See Boiler Flue

Tugs
(See Shipbuilders)

Turbines
(See Steam Turbines)

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Williams & Co., J. H.
Williams, Wm. E.

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(See Lathes, Turret)

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(See Rope; also Cordage)
American Mfg. Co.
Columbian Rope Co.
Plymouth Cordage Co.
Whitlock Cordage Co.
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Williams, Wm. E.

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Vacuum, Pressure and U Gauges
Taylor Instrument Companies

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Davidson, M. T., Co.
Ingersoll-Rand Co.
Warren Steam Pump Co.
Westinghouse Electric & Mfg. Co.
Wheeler Mfg. Co.

Vacuum Traps
Crane Co., The
Griscom-Russell Co.
Williams, Wm. E.

Valve Discs
Goetze Gasket & Packing Co.

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Leavitt Machine Co.

Valves
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Bethlehem Shipbldg. Corp.
Crane Co.
Griscom-Russell Co.
Jerguson Valve Mfg. Co.
Lunkenheimer Co.
Powell Co., The William

Valves (Automatic Relief)
Pratt & Cady Co., Inc.
Sands, A. B., & Son Co.
Watson-Stillman Co.
Williams, Wm. E.

Valves, Ammonia and Carbon Dioxide
Frick Co.
Pratt & Cady Co., Inc.
York Mfg. Co.

Valves—Chronometer
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Valves—Rubber
Powell Co., The William
Pratt & Cady Co., Inc.
Sands, A. B., & Son Co.
Williams, Wm. E.

Valves—Water
Chambersburg Engineering Co.
Crane Co.
Jerguson Gage & Valve Co.
Lunkenheimer Co.
Powell Co., The William
Sands, A. B., & Son Co.
Williams, Wm. E.

Vapor Proof Fittings
(See Waterproof Fittings)

Ventilating Fans
(See Blowers)

Ventilators
Sands, A. B., & Son Co.

Vertical Pumps
(See Pumps)

Vessel Brokers
(See Ship Brokers)

Vises—Chain Pipe, Clamp, Mount
Williams & Co., J. H.
Williams, Wm. E.

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Chase Metal Works
Chase Rolling Mill Co.
Cory, Chas., & Son, Inc.

Wall Radial Drills
(See Radial Drills)

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(See Plumbing)

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Jerguson Gage & Valve Co.
Lunkenheimer Co.
National Tube Co.

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Jerguson Gage & Valve Co.
Lunkenheimer Co.
Powell Co., The William
Schaeffer & Budenburg Mfg. Co.

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Schaeffer & Budenburg Mfg. Co.

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(See Boilers)
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Ward Engineering Works, Chas.

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(Oxy-acetylene Process)
Oxweld Acetylene Co.
Prest-O-Lite Co., Inc.
Vulcan Iron Works, Inc.

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General Electric Co.

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(See Welding and Cutting Apparatus and Supplies)

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(See Cranes)

Wharf Drops
(American Engineering Co

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American Steam Gauge & Valve Mfg. Co.
Ashton Valve Co.
Crane Co.
Lunkenheimer Co.
Powell Co., The William
Sands, A. B., & Son Co.
Williams, Wm. E.

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Post Co., E. L.

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(See Windlasses)
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(See Marine Wiring Devices)

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(See Ship Brokers)

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Yoke Chronometers Valves
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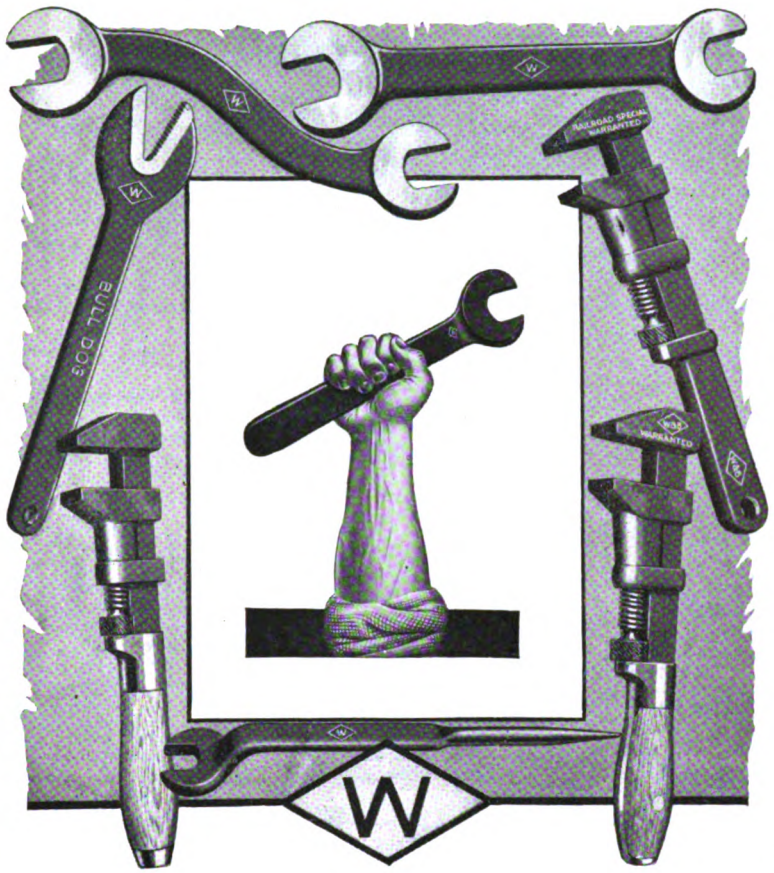

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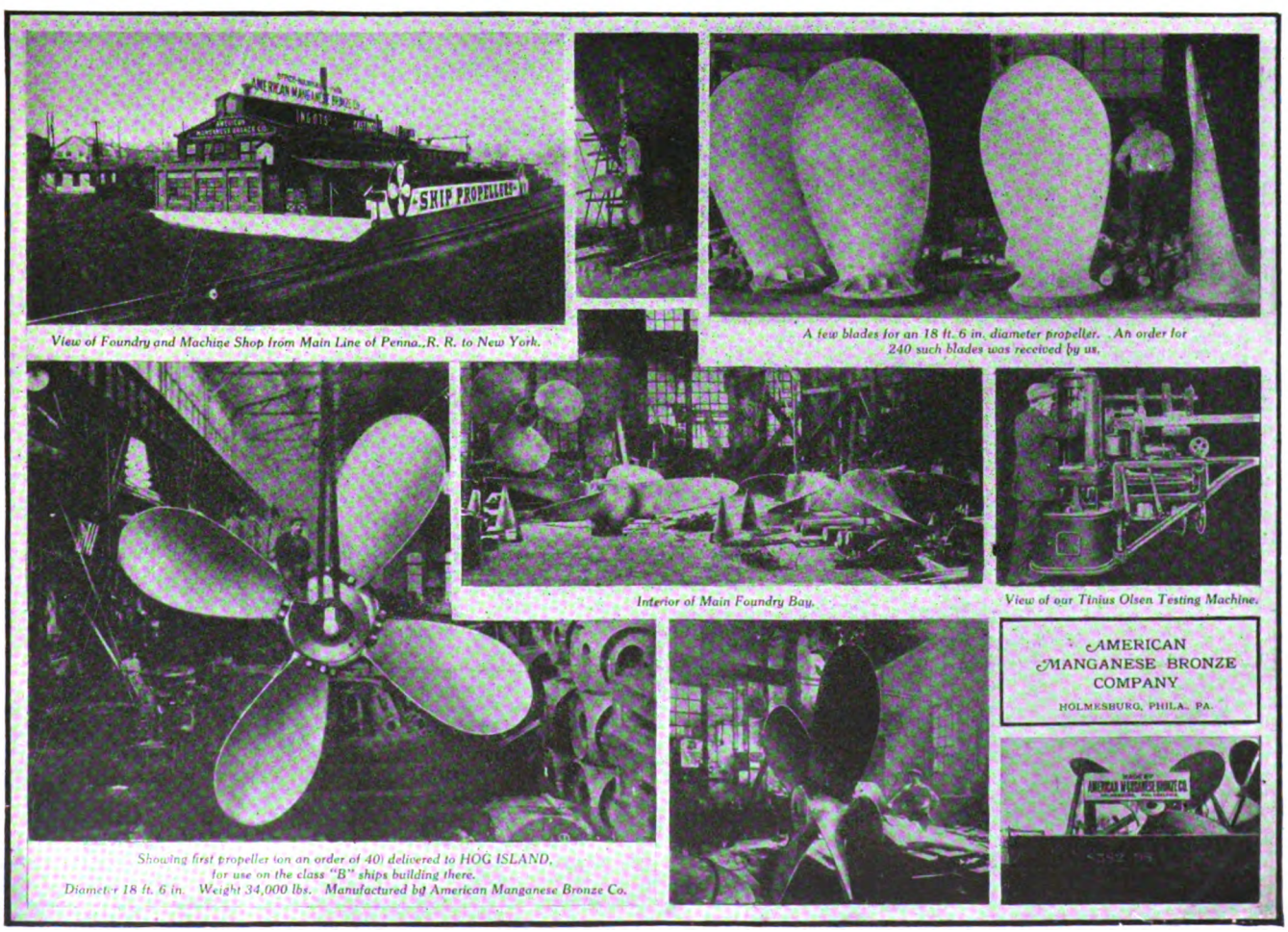

View of Foundry and Machine Shop from Main Line of Penna. R. R. to New York.

A few blades for an 18 ft. 6 in. diameter propeller. An order for 240 such blades was received by us.

Interior of Main Foundry Bay.

View of our Tinius Olsen Testing Machine.

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AMERICAN MANGANESE BRONZE COMPANY
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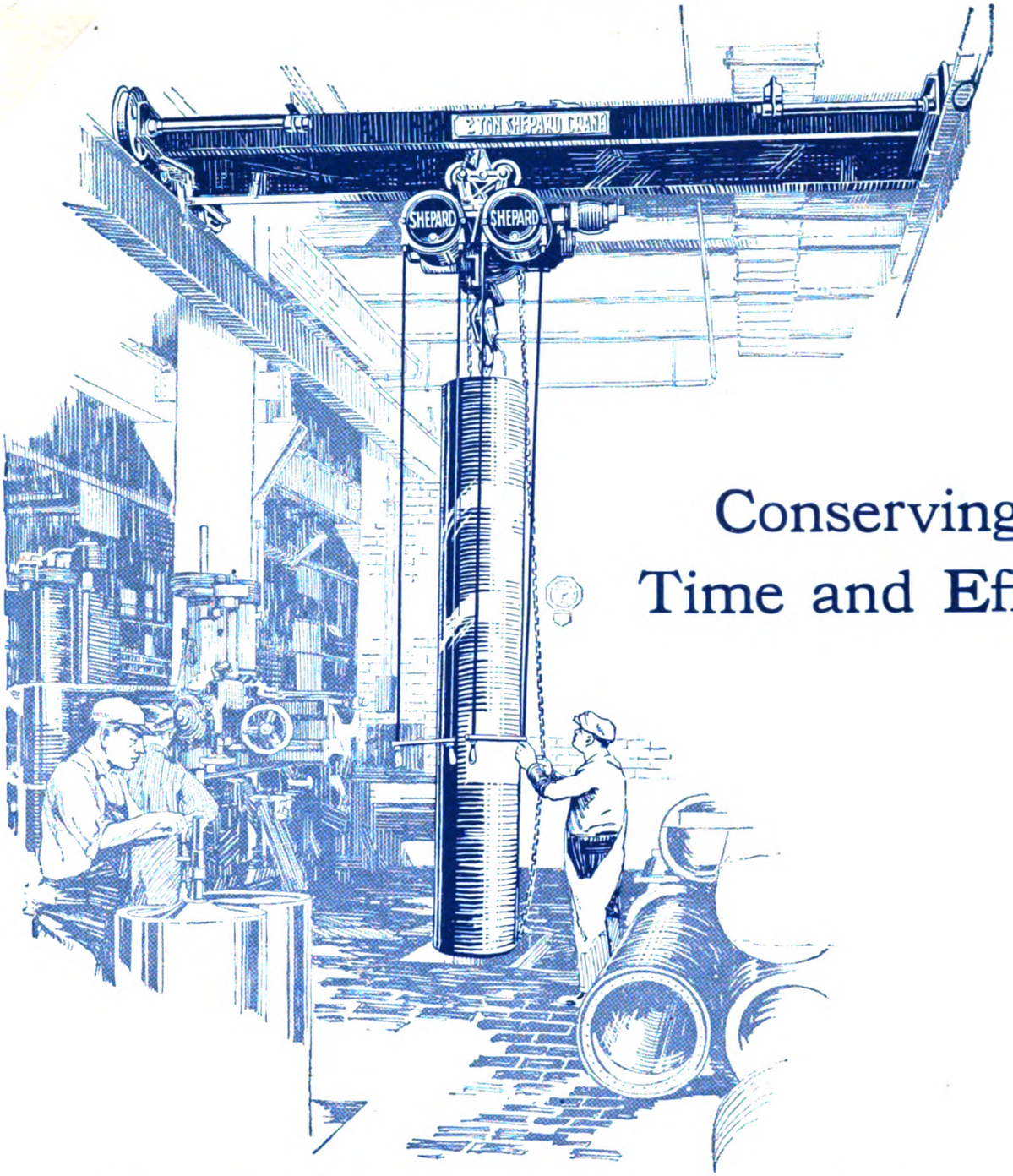

Conserving Time and Effort

A Shepard Electric Crane covers the length and the Electric Hoist running on the crane covers the width—with ONE MAN in full control. In this particular installation the hoist picks up one of the large tubes which the crane carries until it is directly over a pit in the floor. The hoist lowers the tube into the pit and then the necessary machining operations are performed. No effort wasted—no time lost.

Shepards are used everywhere in many and varied industries, and are effecting savings of time, money and men. Communication with Shepard engineers entails no obligations—they will be glad to assist in planning proper transfer and handling equipment.

SHEPARD
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382 Schuyler Ave., Montour Falls, N. Y.

New York Chicago Philadelphia Baltimore
Cleveland Boston San Francisco Pittsburgh
Detroit Cincinnati Melbourne Montreal London

Member Electric Hoist Manufacturers' Ass'n.

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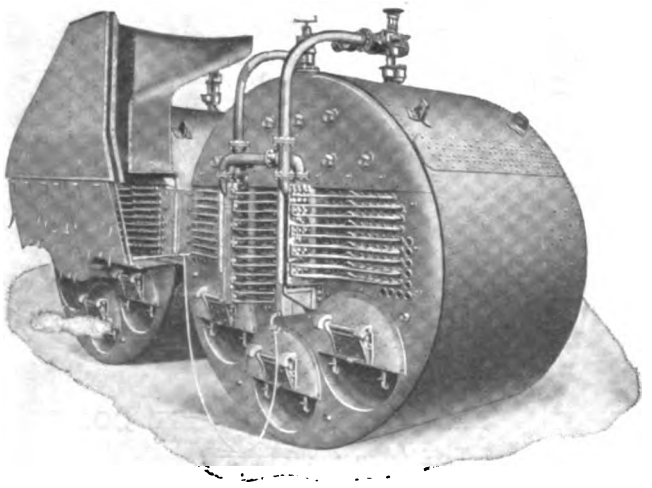
ELESCO

SUPERHEATERS

British Ships are Superheated.
French Ships are Superheated.
Japanese Ships are Superheated.
Dutch Ships are Superheated.
Norwegian Ships are Superheated.



In Scotch boilers steam passes from the boiler, through the superheater located in the fire tubes of the boiler, thence to the engines or turbines. ELESCO Superheaters are readily accessible and easily cleaned.

Therefore, **American Ships** must be operated on high degree superheat to meet after-the-war competition successfully because high degree superheat means lower operating costs.

By reducing fuel consumption, Elesco Fire Tube Superheaters save fuel money, cut down bunker space and release space for revenue-bringing cargo.

THE SUPERHEATER CO.
Formerly the Locomotive Superheater Co.

General Offices:
17 East 42nd St. New York

Chicago: Peoples Gas Bldg.

For Canada: The Superheater Co., Ltd.
Transportation Bldg., Montreal

Designing Engineers and Manufacturers of ELESCO Steam Superheaters and Pipe Coils for all purposes.
Marine Boiler Feed Pump.

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AUGUST, 1921

Marine Engineering

American Marine Week

THE Marine Equipment Association of America will hold an exposition the week of November 14th to 19th, inclusive, at the Central Mercantile Building, Sixth Avenue, 18th to 19th Streets, New York City.

The action of the Marine Equipment Association in deciding to exhibit during the week in which the Society of Naval Architects and Marine Engineers will hold its annual convention, and the appointment by the Council of that society of a committee consisting of Captain C. A. McAllister, Chairman, J. Howland Gardner, W. H. Todd, H. H. Raymond and F. L. DuBosque to act with a like committee of the Marine Equipment Association in laying out a joint program for a big "American Marine Week," will mean much to the shipbuilding industry of this country directly, and will also stimulate public interest in the American merchant marine. Also, the American Society of Marine Draftsmen has changed the date of its annual meeting to November, and it is believed that other organizations in the marine field will decide to meet during that week.

In order to keep pace with this event, MARINE ENGINEERING will publish special numbers for the months of November and December. The November issue will be distributed at the exposition, and the December number will contain a detailed report of the week together with the proceedings of the meetings held.

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When you want it
Where you want it
As much as you want

PREST-O-LITE Dissolved Acetylene and Prest-O-Lite Service have made the oxy-acetylene process indispensable in ship-yards.

Prest-O-Lite
DISSOLVED ACETYLENE

provides ship builders with the purest cutting and welding gas in easily portable, instantly accessible and highly convenient cylinders.

Without such a supply of uniformly high grade gas always at hand, cutters and welders would find impossible many applications of the oxy-acetylene process now in common use.

And Prest-O-Lite Service, operating through forty plants and warehouses, places Prest-O-Lite Dissolved Acetylene at the command of ship-yards anywhere, at any time and in any desired quantity.

THE PREST-O-LITE COMPANY, Inc.

General Offices: Carbide and Carbon Building, 30 East 42nd Street, New York

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THE "ROBIN" BOATS ARE SUPERHEATED

ROBIN ADAIR
ROBIN GOODFELLOW
ROBIN HOOD
ROBIN GRAY

Four "Robin" ships owned by the Seas Shipping Co. are equipped with High Degree Fire Tube Superheaters.

Only by taking advantage of such economy producing devices can other American ship owners successfully meet foreign competition.

Our bulletins explain the advantages of High Degree Superheat — advantages which have been considered worth while in over 2,000 ships.

THE SUPERHEATER COMPANY
Formerly the Locomotive Superheater Co.
General Offices: 17 East 42nd St., New York
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For Canada: THE SUPERHEATER CO., Ltd., Transportation Bldg., Montreal
Designing Engineers and Manufacturers of ELESCO Steam Superheaters and Pipe Coils for All Purposes. Feed Water Heating Equipment for Marine and Locomotive Service. Boiler Feed Pumps for all services.

ELESCO

Fire Tube Superheaters

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OCTOBER, 1921

Marine Engineering
and Shipping Age

WE CAN FURNISH ANY VALVE
OR FITTING FOR SHIP USE

CRANE CO.

836 So. Michigan Ave. Chicago, Ill.

BRANCHES IN 65 PRINCIPAL CITIES

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Doctoring a deck

DOZENS of time and labor saving applications have made the process of gas welding and cutting indispensable in ship yards.

Because of its uniformly high purity, exceptional portability and constant availability

Prest-O-Lite
DISSOLVED ACETYLENE

has proven the most satisfactory gas for welding and cutting in ship building and repairing.

Forty plants and warehouses insure immediate deliveries of Prest-O-Lite anywhere and in any desired quantity—a never failing service that has greatly enhanced the value of Prest-O-Lite in the hundreds of yards where it is regularly used.

THE PREST-O-LITE COMPANY, Inc.

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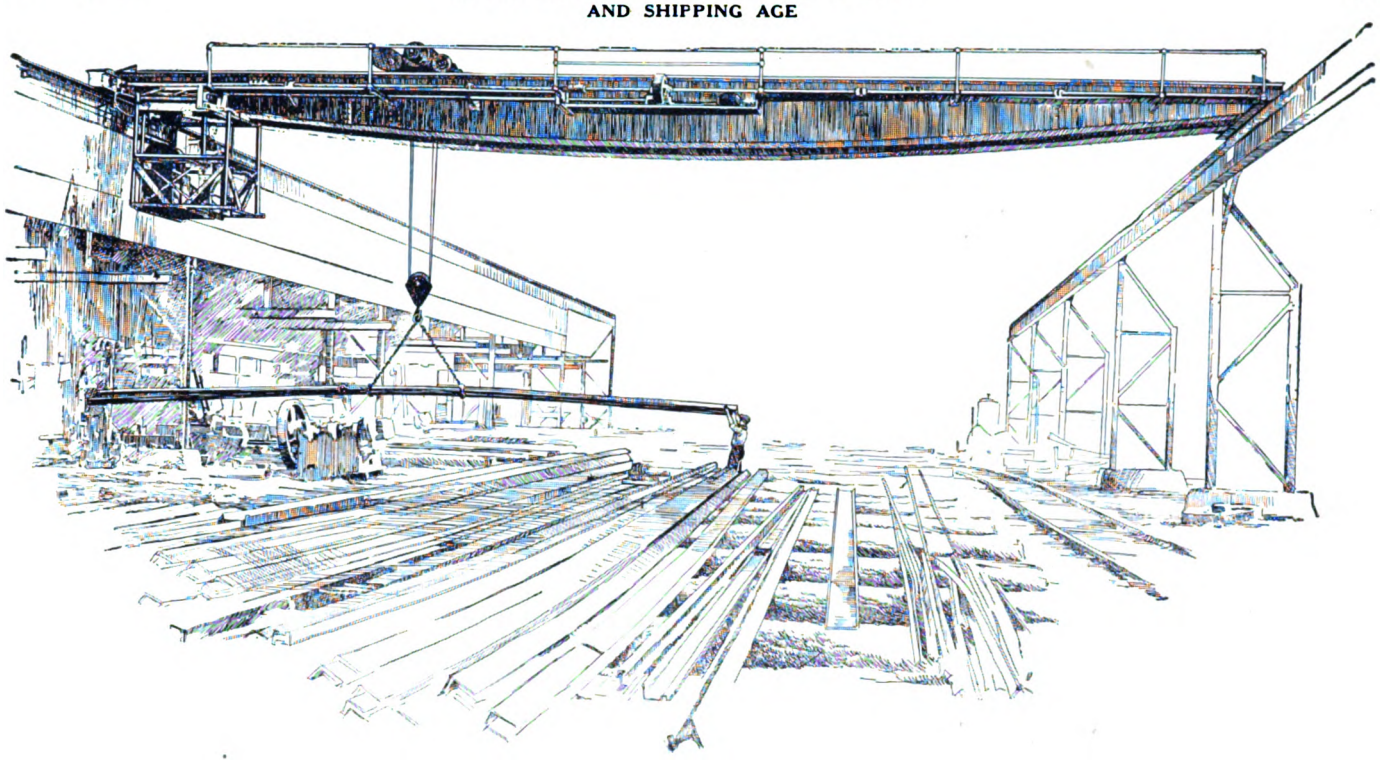

Impervious to weather

A Shepard Electric Traveling Crane, in all of its working parts, both electrical and mechanical, is "element proof"—rain and dampness, or sleet and snow cannot "touch" vital parts. Tight metal housings form an impenetrable protection. Mill dirt, dust, and fumes are likewise effectively kept out.

You buy permanence (steady, consistent operation) when you invest in a Shepard Crane. It is a crane that functions properly and dependably as often as called into service.

Thorough, even lubrication of Shepard Cranes is provided by oil baths in which gears operate. All running parts of the crane trolley are maintained in correct alignment, keeping the pressure and stresses in gear teeth, bearings, brakes, etc., within safe limits.

"Shepard" builds Electric Traveling Cranes in capacities of 1 to 50 tons; Electric Hoists; Electric Monorail Transfer Cranes; Electric Winches; and Electric Cargo Handling Equipment for Docks and Ships.

Shepard engineers are at your service. Call upon them.

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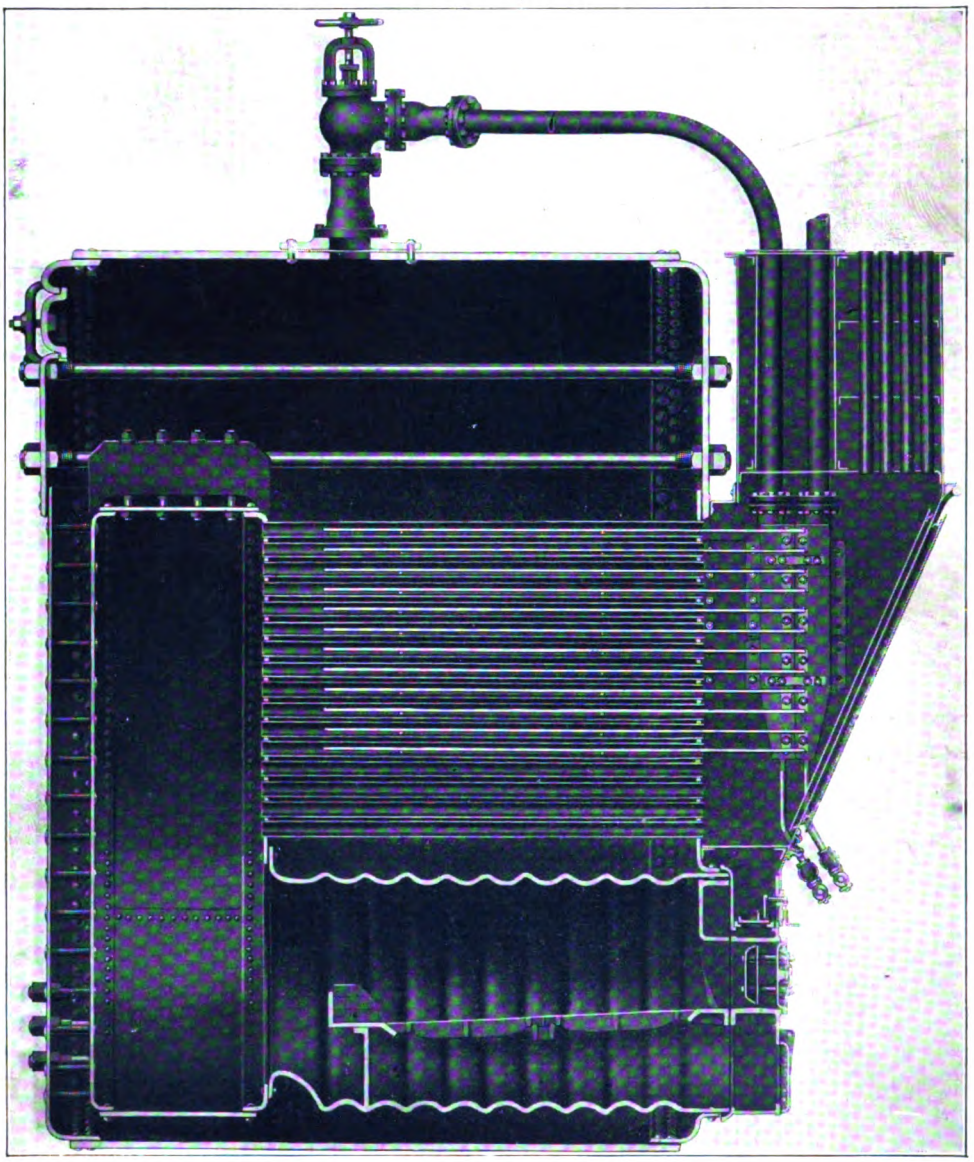

Superheat for American Ships

The necessity of the day is reduced overhead.

A reduction in engine room costs is the opportunity open to place American Shipping on a sound basis.

Fuel costs, one of the largest items of ship overhead, can be reduced 10 to 15% through superheating.

The success of Fire Tube High Degree Superheaters is proved by years of service on 2500 ships operating all over the world.

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NOVEMBER, 1921

THE JOHN CRERAR
NOV 14 1921

Marine Engineering

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We Can Supply Any Valve or Fitting for Ship Use

1855 — CRANE CO. — 1921

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When you want it
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As much as you want

PREST-O-LITE Dissolved Acetylene and Prest-O-Lite Service have made the oxy-acetylene process indispensable in ship-yards.

Prest-O-Lite
DISSOLVED ACETYLENE

provides ship builders with the purest cutting and welding gas in easily portable, instantly accessible and highly convenient cylinders.

Without such a supply of uniformly high grade gas always at hand, cutters and welders would find impossible many applications of the oxy-acetylene process now in common use.

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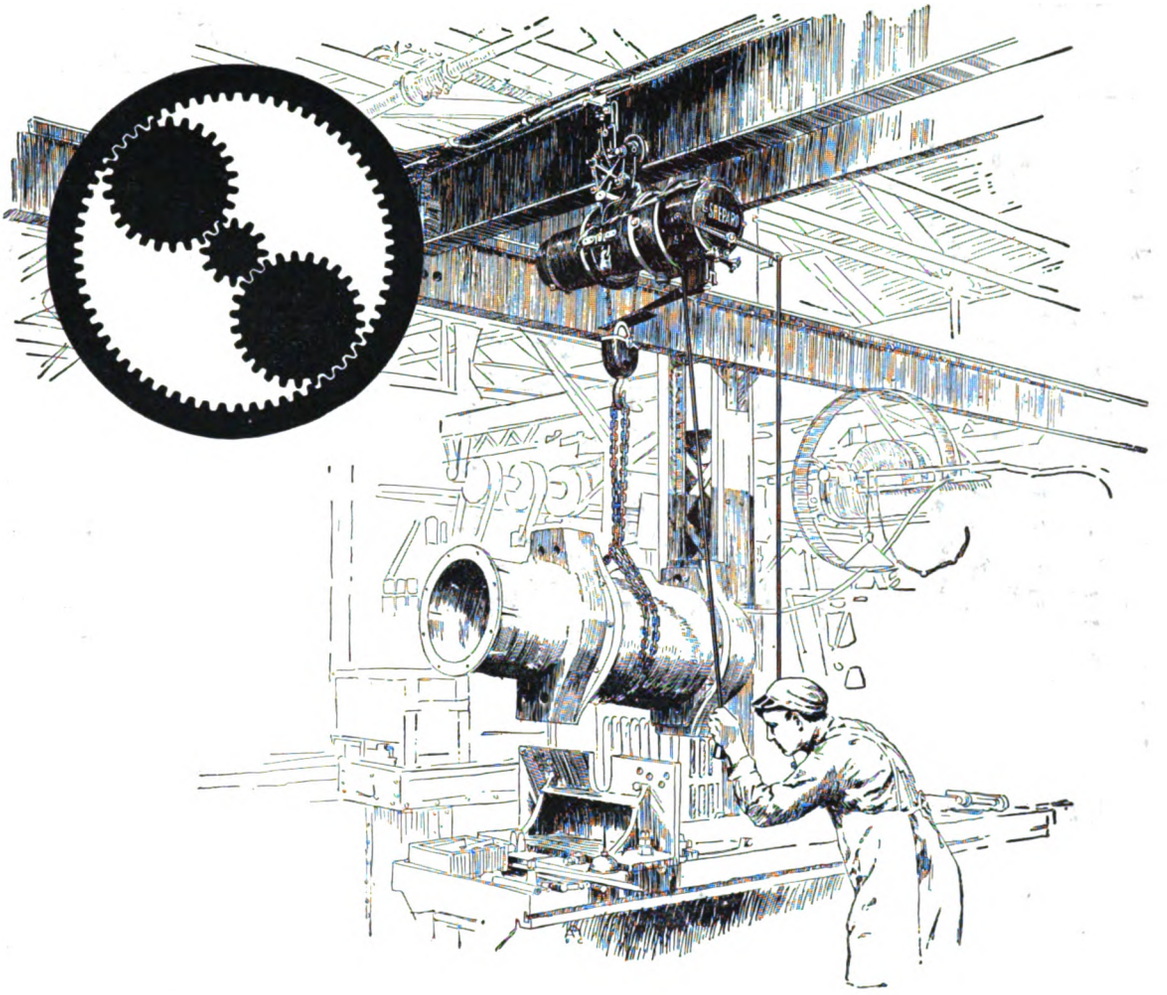

Shepard assures speed and accuracy

MACHINING operations are an important item of production cost which is materially reduced where Shepard Electric Hoists are installed.

The operator of a Shepard waives assistance, for he has in his control all necessary equipment for handling the heavy pieces and placing them in the precise position.

"Shepards" do the work rapidly and are economical in operation and maintenance. If you have anything to be picked up, carried, and put down, give it to a Shepard, for in so doing you are providing efficient, dependable, and profitable means for doing the work.

Shepard Engineers have planned many successful handling and transfer systems that have materially aided in reducing production costs. Their services are extended to you.. You assume no obligation in inquiring.

Shepard builds Electric Hoists ½ to 30 tons, Electric Travelling Cranes 1 to 50 tons, Electric Winches, and Electric Cargo Handling Equipment for Docks and Ships.

SHEPARD ELECTRIC CRANE & HOIST CO.
382 Schuyler Ave., Montour Falls, N. Y.

New York	Chicago	Philadelphia	Pittsburgh
Buffalo	San Francisco	Baltimore	Detroit
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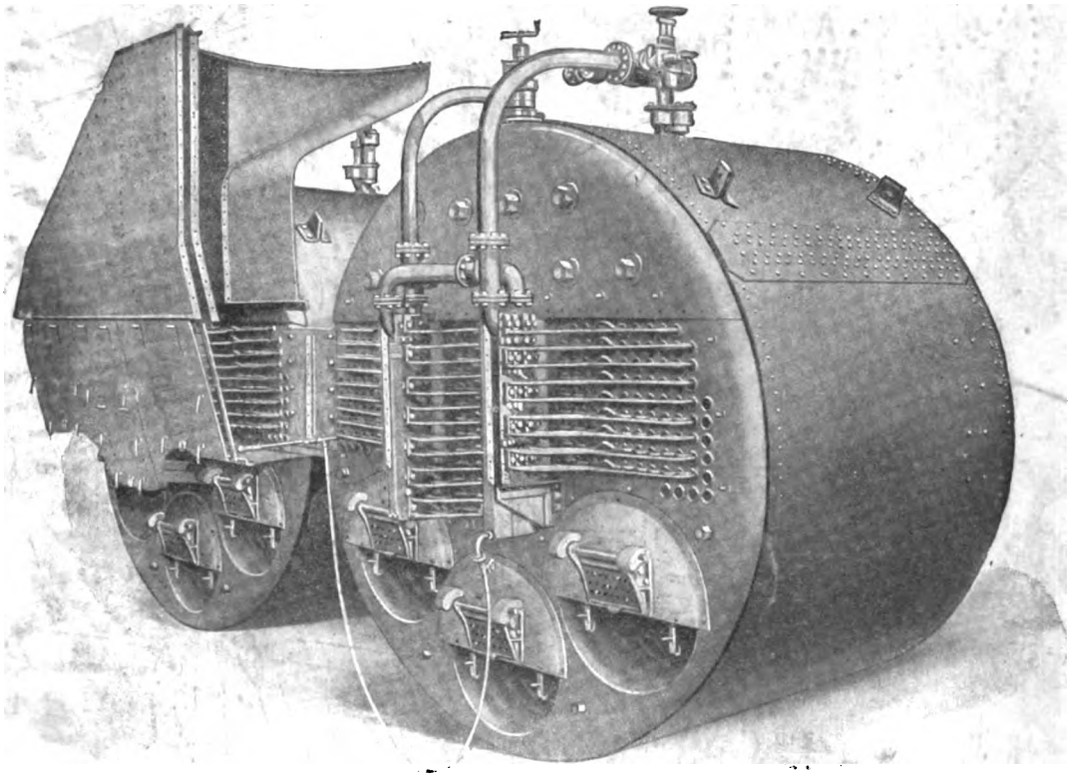
FIRE TUBE SUPERHEATERS



Save 18% in Fuel

Compare the cost of operating these three ships:—

	Ship A	Ship B	Ship C
Distance run (miles)	22,191	22,080	22,240
Coal per day (tons)	37.8	45.3	46.1
Coal per 100 miles (tons)	16.0	17.9	18.7
Coal per 100 miles (relative)	85.5	95.7	100.0
Cost in dollars of coal per 100 miles	186.38	190.40	234.29
Cost of coal per 100 miles (relative)	79.5	81.3	100.0
Mean working displacement	13,500	13,000	13,100
Coal per 100 displacement ton miles, lbs.	2.62	3.03	3.19
Coal per 100 displacement ton miles (relative)	80	95	100
	200° S. H.	100° S. H.	Saturated

These ships are identical in hull sizes, and run over the same route at approximately the same season of the year.

All three ships are fitted with identical triple expansion engines, and they have been free of any operating difficulties in the three or four years they have been in this service.

The highest economical performance of your ships is possible only when they are equipped with fire tube superheaters.

They can be easily applied when the ship is in port.

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DECEMBER, 1921

Marine Engineering

and Shipping Age

THE JOHN CRERAR
DEC 16 1921
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Setting the broken nose of commerce

THE oxy-acetylene welding and cutting torches—those twin metal surgeons—are indispensable in ship yards.

Wherever metals must be cut or joined neatly, quickly and economically the oxy-acetylene process is invaluable.

Prest-O-Lite

DISSOLVED ACETYLENE

because of its portability, has made it possible to weld or cut in the most inaccessible places. Wherever the job may be—below or aloft, inside or out—Prest-O-Lite goes to the job!

Forty Plants and Warehouses insure a constant and unlimited supply of uniformly pure gas. Write us about the Prest-O-Lite nation-wide service plan.

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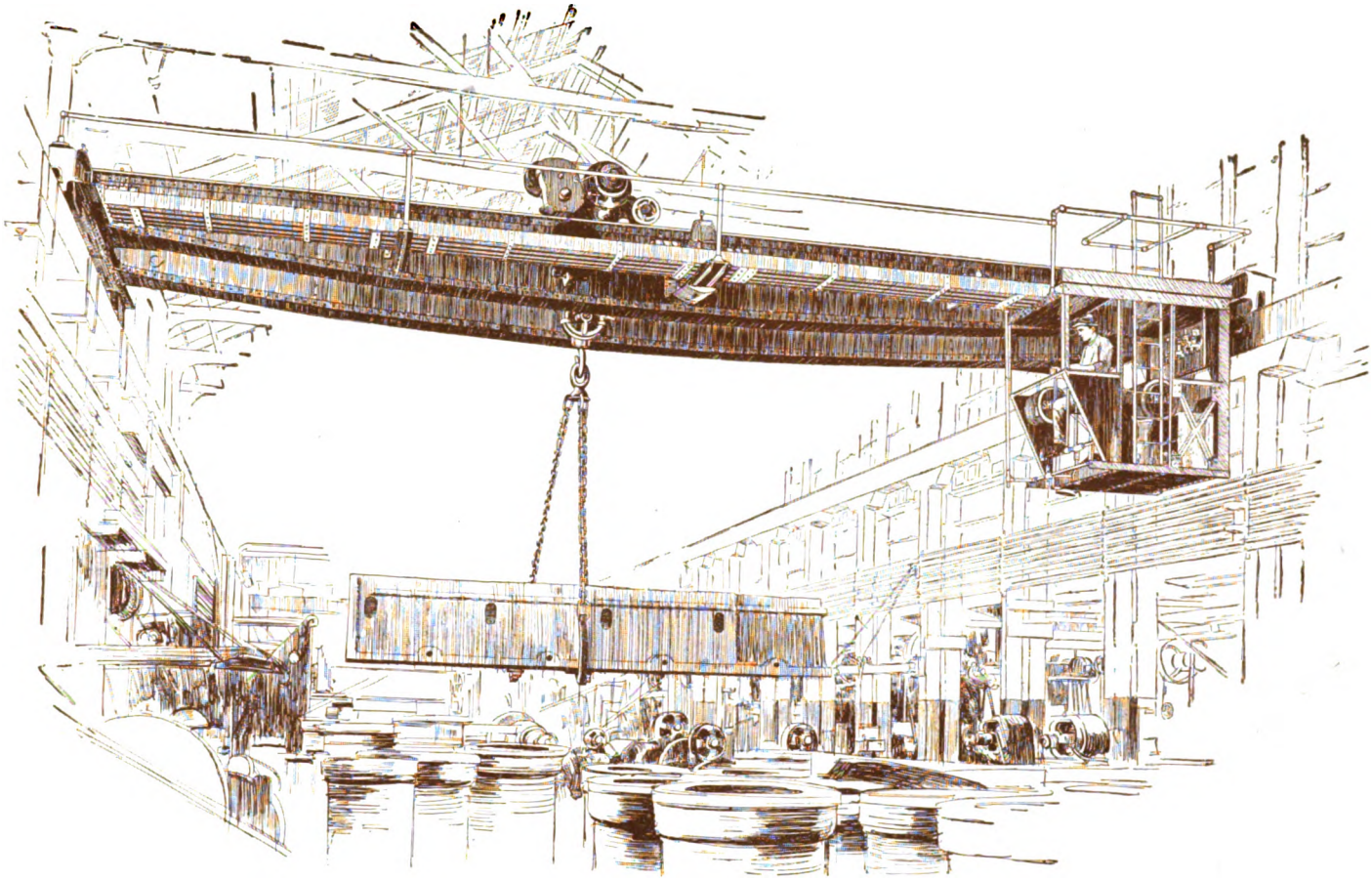

It can't be overworked

A Shepard Electric Traveling Crane is built for severe service—and faultlessly responds. It is capable of handling a capacity load (or reasonably over) every working hour, every day, year in and year out.

Because operating mechanisms, both electrical and mechanical, work within tight metal housings, the elements, dirt, dust, or dampness, can in no way impede the efficiency of a Shepard Traveling Crane. Gears operate in baths of oil, assuring thorough, even lubrication.

All running parts of the crane trolley are maintained in correct alignment, keeping the pressure and stresses in gear teeth, bearings, brakes, etc., within safe limits.

Shepard Engineers are at your service. Call upon them.

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